STATE OF UTAH
HAZARD MITIGATION PLAN

March 2011

Governor Gary R. Herbert
Lieutenant Governor Greg Bell
Department of Public Safety Commissioner, D. Lance Davenport
Division of Homeland Security Director, Keith D. Squires

Jurisdictions with Approved and Promulgated Hazard Mitigation Plans

City/County	Date Approved
Juab County	August 2, 2004
Eureka	August 4, 2004
Levan	September 2, 2004
Mona	August 24, 2004
Nephi	September 21, 2004
Rocky Ridge	July 22, 2004
Millard County	July 26, 2004
Delta	August 12, 2004
Fillmore	August 3, 2004
Hinckley	August 8, 2004
Holden	September 2, 2004
Kanosh	August 11, 2004
Leamington	August 8, 2004
Lynndyl	August 18, 2004
Meadow	September 14, 2004
Oak City	August 26, 2004
Scipio	August 2, 2004
Piute County	September 13, 2004
Circleville	August 23, 2004
Junction	September 14, 2004
Kingston	September 15, 2004
Marysvale	September 2, 2004
Sanpete County	September 7, 2004
Centerfield	August 5, 2004
Ephraim	August 4, 2004
Fairview	September 22, 2004
Fayette	August 5, 2004
Fountain Green	September 14, 2004
Gunnison	July 28, 2004
Manti	September 8, 2004
Mayfield	September 8, 2004
Moroni	August 30, 2004
Mt. Pleasant	July 19, 2004
Spring City	August 5, 2004
Sterling	July 15, 2004
Wales	August 25, 2004
Sevier County	August 2, 2004
Annabella	August 10, 2004
Aurora	September 10, 2004
Elsinore	September 7, 2004
Glenwood	August 11, 2004
Joseph	September 2, 2004

Koosharem	August 5, 2004
Monroe	July 27, 2004
Redmond	August 11, 2004
Richfield	July 15, 2004
Salina	September 8, 2004
Sigurd	September 3, 2004
Wayne County	August 2, 2004
Bicknell	July 15, 2004
Hanksville	August 14, 2004
Loa	July 19, 2004
Lyman	August 31, 2004
Torrey	August 12, 2004
Carbon County	June 16, 2004
East Carbon	June 8, 2004
Helper	June 17, 2004
Price	June 9, 2004
Scofield	July 12, 2004
Sunnyside	June 1, 2004
Wellington	July 28, 2004
Emery County	June 15, 2004
Castle Dale	June 10, 2004
Clawson	July 8, 2004
Cleveland	July 8, 2004
Elmo	August 24, 2004
Emery	June 30, 2004
Ferron	June 24, 2004
Green River	July 13, 2004
Huntington	June 16, 2004
Orangeville	June 10, 2004
Grand County	June 15, 2004
Castle Valley	September 22, 2004
Moab	July 13, 2004
San Juan County	June 7, 2004
Blanding	June 15, 2004
Bluff	June 2, 2004
Monticello	June 23, 2004
Box Elder County	March 30, 2004
Bear River	January 6, 2010
Brigham City	April 1, 2004
Corrine	February 2, 2010
Deweyville	April 8, 2004
Elwood	April 13, 2004
Fielding	April 8, 2004
Garland	April 20, 2004
Honeyville	April 14, 2004

Howell	February 9, 2010
Mantua	July 8, 2004
Perry	April 22, 2004
Plymounth	May 10, 2004
Portage	April 8, 2004
Snowville	January 13, 2010
Tremonton	January 19, 2010
Willard	May 13, 2004
Cache County	January 26, 2010
Amalga	May 12, 2004
Clarkston	July 8, 2004
Cornish	April 8, 2004
Hyde Park	May 26, 2004
Hyrum	May 20, 2004
Lewiston	May 16, 2004
Logan	January 19, 2010
Mendon	January 14, 2010
Millville	April 13, 2004
Newton	August 5, 2004
Nibley	May 20, 2004
North Logan	June 3, 2004
Paradise	July 21, 2004
Providence	May 25, 2004
Richmond	May 14, 2004
River Heights	August 24, 2004
Smithfield	April 28, 2004
Trenton	
Wellsville	May 5, 2004
Rich County	June 2, 2004
Garden City	June 10, 2004
Laketown	April 8, 2004
Randolph	February 4, 2010
Woodruff	April 13, 2004
Beaver County	July 6, 2004
Beaver	July, 13, 2004
Millford	May 18, 2004
Minersville	July 6, 2004
Garfield County	May 24, 2004
Antimony	June 3, 2004
Boulder	June 8, 2004
Cannonville	May 20, 2004
Escalante	June 15, 2004
Hatch	June 8, 2004
Henrieville	July 14, 2004
Panguitch	May 25, 2004

Tropic	May 27, 2004
Iron County	May 24, 2004
Brian Head	June 29, 2004
Cedar	June 9, 2004
Enoch	June 16, 2004
Kanarraville	June 10, 2004
Paragonah	June 9, 2004
Parowan	June 24, 2004
Kane County	June 14, 2004
Alton	July 12, 2004
Big Water	June 22, 2004
Glendale	June 24, 2004
Kanab	May 25, 2004
Orderville	June 2, 2004
Washington County	August 3, 2004
Enterprise	May 26, 2004
Hildale	May 18, 2004
Hurricane	May 20, 2004
Ivins	July 1, 2004
La Verkin	July 7, 2004
Leeds	May 26, 2004
New Harmony	June 2, 2004
Rockville	May 19, 2004
St. George	July 15, 2004
Santa Clara	July 28, 2004
Springdale	June 9, 2004
Toquerville	May 13, 2004
Virgin	May 26, 2004
Washington	June 9, 2004
Summit County	
Coalville	Plan approved, process of adopting
Francis	October 19, 2004
Henefer	Plan approved, process of adopting
Kamas	Plan approved, process of adopting
Oakley	Plan approved, process of adopting
Park City	Plan approved, process of adopting
Utah County	September 14, 2004
Alpine	Plan approved, process of adopting
American Fork	Plan approved, process of

	adopting
Cedar Fort	Plan approved, process of adopting
Cedar Hills	Plan approved, process of adopting
Eagle Mountain	Plan approved, process of adopting
Plan approved, process of adopting	Plan approved, process of adopting
Genola	Plan approved, process of adopting
Goshen	Plan approved, process of adopting
Highland	Plan approved, process of adopting
Lehi	Plan approved, process of adopting
Lindon	Plan approved, process of adopting
Mapleton	Plan approved, process of adopting
Orem	Plan approved, process of adopting
Payson	Plan approved, process of adopting
Pleasant Gove	Plan approved, process of adopting
Provo	Plan approved, process of adopting
Salem	Plan approved, process of adopting
Santaquin	Plan approved, process of adopting
Saratoga Springs	Plan approved, process of adopting
Spanish Fork	Plan approved, process of adopting
Springville	Plan approved, process of adopting
Vineyard	Plan approved, process of adopting
Woodland Hills	Plan approved, process of adopting
Wasatch County	Plan approved, process of adopting
Charleston	Plan approved, process of

	adopting
Heber City	Plan approved, process of adopting
Midway	Plan approved, process of adopting
Wallsburg	Plan approved, process of adopting
Daggett County	July 9, 2004
Manila	July 9, 2004
Duchesne County	July 9, 2004
Altomont	July 9, 2004
Duchesne	July 14, 2004
Myton	July 9, 2004
Roosevelt	July 9, 2004
Tabiona	July 9, 2004
Uintah County	July 9, 2004
Ballard	July 14, 2004
Naples	July 22, 2004
Vernal	July 9, 2004
Davis County	December 22, 2009
Bountiful	March 9, 2010
Centerville	December 2, 2008
Clearfield	December 9, 2008
Clinton	December 23, 2008
Farmington	July 21, 2004
Fruit Heights	December 2, 2008
Kaysville	January 19, 2010
Layton	December 18, 2008
North Salt Lake	July 20, 2004
South Weber	February 10, 2009
Sunset	October 6, 2009
Syracuse	December 8, 2009
West Bountiful	July 20, 2004
West Point	January 19, 2010
Woods Cross	January 6, 2009
Morgan County	December 2, 2008
Morgan	November 25, 2008
Salt Lake County	February 23, 2010
Alta	December 11, 2008
Bluffdale	December 9, 2008
Draper	February 3, 2009
Herriman	December 4, 2008
Holladay	December 11, 2008
Cottonwood Heights	September 22, 2009
Midvale	December 12, 2008

Murray	October 20, 2009
Riverton	November 18, 2008
Salt Lake City	October 21, 2009
Sandy	November 18, 2008
South Jordan	October 6, 2009
South Salt Lake	September 23, 2009
Taylorsville	December 3, 2008
West Jordan	October 28, 2009
West Valley City	December 16, 2008
Tooele County	December 2, 2008
Grantsville	December 3, 2008
Ophir	May 4, 2010
Rush Valley	January 28, 2009
Stockton	February 16, 2010
Tooele	February 17, 2010
Vernon	December 9, 2008
Wendover	December 17, 2008
Weber County	January 5, 2010
Farr West	February 17, 2010
Harrisville	November 24, 2009
Hooper	February 4, 2010
Huntsville	January 21, 2010
Marriott-Slaterville	November 19, 2009
North Ogden	November 24, 2009
Ogden	February 16, 2010
Plain City	November 19, 2009
Pleasant View	January 12, 2010
Riverdale	November 17, 2009
Roy	February 2, 2010
South Ogden	December 1, 2009
Uintah	November 17, 2009
Washington Terrace	December 1, 2009
West Haven	January 6, 2010
Paiute Indian Tribe	August 4, 2004
Kanosh Band	August 4, 2004
Koosharem Band	July 30, 2004

Specialized Local Districts with Approved and Promulgated Hazard Mitigation Plans

Specialized Local District	Date Approved
Bona Vista Water Improvement District, Weber County	January 28, 2010
Central Utah Water Conservancy District	
Central Weber Sewer Improvement District, Weber County	January 25, 2010
Clinton City Sanitary Sewer SSD, Davis County	December 23, 2008
Cottonwood Heights Parks & Rec. Service Area, Salt Lake County	December 18, 2008
Davis School District, Davis County	March 16, 2010
Deseret Peak Special Service District, Tooele County	December 2, 2008
Granite School District, Salt Lake County	
Granger-Hunter Improvement District, Salt Lake County	December 9, 2008
Hooper Water Improvement District, Weber County	February 9, 2010
Jordan School District, Salt Lake County	
Lake Point Improvement District, Tooele County	December 4, 2009
Midvalley Improvement District, Salt Lake County	January 14, 2009
Morgan School District, Morgan County	December 9, 2008
Mountain Green Fire Protection District, Morgan County	December 1, 2008
Mountain Green Sewer Improvement District, Morgan County	November 13, 2008
Murray School District, Salt Lake County	
North Davis Fire District, Davis County	
North View Fire District, Weber County	January 2010
Ogden City School District, Weber County	January 27, 2010
Ogden Regional Medical Center, Weber County	February 12, 2010
Pineview Water Systems, Weber County	
Salt Lake City School District, Salt Lake County	February 3, 2009
Salt Lake County Service Area #3, Salt Lake County	December 9, 2008
South Davis Fire District, Davis County	
South Davis Recreation District Board, Davis County	December 15, 2008
South Rim Special Service District, Tooele County	December 1, 2008
South Valley Sewer District, Salt Lake County	October 28, 2009
Stansbury Park Improvement District, Tooele County	December 2, 2008
Stansbury Service Agency, Tooele County	January 14, 2009
Taylorsville-Bennion Improvement District, Salt Lake County	January 30, 2008

Specialized Local District	Date Approved
Tooele School District, Tooele County	
Unified Fire Authority, Salt Lake County	January 20, 2009
Valley Emergency Communications Center, Salt Lake County	December 15, 2008
Weber School District, Weber County	
Weber State University, Weber County	November 20, 2009
Weber Basin Water Conservancy District, Weber County	
West Erda Improvement District, Tooele County	December 2, 2008

Executive Summary

The State of Utah's Hazard Mitigation Plan (SHMP) demonstrates the State's commitment to reducing risks from all hazards, natural and human caused, and serves as a guide for State decision makers in committing resources to reduce the effects of these hazards.

Natural and human-caused disaster has led to an increase in death, injury, property damage, and impacted business and government services. The impact from disasters to families can be immense the impact to business devastating to our economy. Each year natural and technological and manmade hazard events also occur in Utah. It is important to understand the risk represented by those events and take actions to protect against them.

An overall purpose of this plan is to provide a guide for actions by state agencies, local governments, business and industry, and citizens to ensure that mitigation planning activities are being completed, that hazard mitigation actions are based on the current hazard information available, and that mitigation actions are appropriate based on the situation, and most importantly, that these actions but are wise investments of taxpayer funds.

To remain eligible for hazard mitigation grant assistance following a Presidential Declaration, the State Hazard Mitigation Plan must be maintained, reviewed, updated and submitted to the Federal Emergency Management Agency (FEMA) for approval every three years. State Mitigation Plan requirements are outlined in Section 44, Code of Federal Regulations (CFR), Part 201. The following document represents the update to the approved Standard State Hazard Mitigation Plan that was approved by FEMA in 2008.

Plan Mission

The Utah State Hazard Mitigation Plan (SHMP) is intended to direct Utah's mitigation efforts. Hazard mitigation plans identify hazards, determine areas vulnerable to natural disasters and determine ways to reduce or eliminate injuries, loss of life, and property damage within these areas

The State Hazard Mitigation Plan (SHMP) mission is to substantially and permanently diminish the state's vulnerability to natural hazards. The plan is intended to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the natural environment. This can be achieved by increasing public awareness, documenting resources for risk reduction and loss-prevention, and identifying activities, which act as a guide, to assist the state in becoming safer and more sustainable.

Plan Organization

The SHMP was developed and organized within the rules and regulations established under CFR Title 44, Part 201.6. As a part of this three-year review and update, the overall format of the plan has remained the same. The plan is intended to improve the

State's ability to handle disasters, and will document valuable local knowledge on the most efficient and effective ways to reduce loss.

Section 1, Introduction, summarizes the plan, describes the planning process, describes the integration of the plan into other state planning initiatives, outlines how the plan will be evaluated and updated.

Section 2, Identifying Hazards, is the scientific foundation of the plan. This section profiles eight hazards that are present in Utah (hazard history, determination of risk and vulnerability of buildings and infrastructure) and includes a brief discussion of development trends and consequence analysis.

Section 3, State Mitigation Strategy, presents hazard mitigation goals, objectives and actions items to be effective in hazard mitigation.

Section 4, Conclusion, discuss local plan coordination and integration, state and local plan coordination, identifies areas of deficiencies, identifies the present and potential sources for funding for local mitigation planning activities.

Section 5, Local Mitigation Strategies, is a list of county mitigation strategies.

Finally, an Appendix contains additional information that supports the content of the plan.

Plan Financing

Funding was provided through the operating budget of state and the FEMA Emergency Management Preparedness Grant (EMPG). Future funding for the next update in 2014 is being included as a part of the FEMA Emergency Management Preparedness Grant (EMPG) yearly application process.

Plan Update

The 2010 SHMP update addresses a range of new conditions, laws and programs that have emerged since Federal Emergency Management Agency (FEMA) approved the 2008 SHMP. This version of the State of Utah Hazard Mitigation Plan (SHMP) is basically a natural hazard mitigation plan. A Technological and Man-made Hazard Annex was included in the 2008 SHMP. Technological and man-made hazards have been incorporated into the plan and are no longer considered a separate annex to the plan.

This Plan update builds upon the risk assessment and mitigation strategy that was developed in 2008. In addition, other plan elements were updated as needed to incorporate new information regarding hazards that threaten Utah as well as changes to agency programs that address hazards.

Plan Participation

The State Hazard Mitigation Plan has been updated as a result of a collaborative effort between the seven Associations of Government (AOG), Utah Department of Public

Safety, Division of Homeland Security (Utah DHLS), City and County Emergency Managers, the State Hazard Mitigation Team (SHMT), and citizens and public employees of the cities and counties in Utah. The State Hazard Mitigation Plan represents the end product of a statewide planning process. This planning process included local input solicited as part of seven multi-jurisdictional plans completed by the Associations of Government.

Plan Goals

In an effort to ensure that the mission of the State Hazard Mitigation Plan is met, the participants in the planning process reviewed and agreed to keep the goals developed and defined utilizing the list of goals from the 2008 Plan. These goals are directly relevant to meeting the mission of the plan. The State Hazard Mitigation Planning Committee (SHMPC), in discussion and meetings with the SHMT, and review from updated regional mitigation plans, continue to be a critical component of the goal review and revaluation process.

The following is a list of the goals identified during the planning process, which provided overall direction to the plan:

- Protection of life before, during, and after the occurrence of a disaster
- Preventing loss of life and reducing the impact of damage where problems cannot be eliminated
- Protection of emergency response capabilities (critical infrastructure)
- Communication and warning systems
- Emergency medical services and medical facilities
- Mobile resources
- Critical facilities
- Government continuity
- Protection of developed property, homes and businesses, industry, education opportunities and the cultural fabric of a community, by combining hazard loss reduction with the community's environmental, social and economic needs
- Protection of natural resources and the environment, when considering mitigation measures
- Promoting public awareness through education of community hazards and mitigation measures
- Preserving and/or restoring natural features that provide mitigation such as floodplains
- Minimize the impacts of flooding
- Minimize the impacts of drought
- Minimize the impacts of severe weather
- Minimize the risk of wildfire
- Minimize the risk of dam failure
- Minimize the impacts of landslides
- Minimize the impacts of earthquake

Preface

The Utah Division of Homeland Security is the state's designated coordinating agency for disaster preparedness, emergency response and recovery, and hazard mitigation programs. The State of Utah Hazard Mitigation Plan is the latest in a series of documents created under the title of "State Hazard Mitigation Plan" and is intended to guide and direct Utah's mitigation efforts. These mitigation efforts attempt to reduce or eliminate the impact of identified hazards on life, property, and the environment.

This is the three-year update of the State Hazard Mitigation Plan required by FEMA. Coordination between and among participating agencies is the key to successful mitigation plan and any level of government. During this planning cycle, Federal and state agencies continued to work together. The Pre-Disaster Mitigation Grant Program (PDM) provided funding for three currently approved Regional Mitigation Plans. Four regional mitigation plans have been funded through the Pre-Disaster Mitigation Grant Program and are in the process of being updated. Emergency Management Preparedness Grant (EMPG) was also used in support of the plan update.

This plan incorporates the following information under the Disaster Mitigation Act of 2000 (DMA 2000) 44 CFR Part 201.4, Interim Final Rule:

- A description of an effective planning process used to develop this plan,
- A description of an effective planning process used to update this plan,
- Hazard identification and risk assessment of natural hazards which provide the factual basis for activities proposed in the mitigation strategy section,
- A mitigation strategy that provides the state's blueprint for reducing the losses identified in the risk assessment,
- Current and past hazard mitigation programs, (HMGP, FMA, PDM, Project Impact), plans and resources,
- A section on the coordination of local mitigation planning throughout the state,
- A plan maintenance process for monitory, evaluating, and updating the plan,
- A plan adoption process on the state, regional, and local levels,
- Assurances that the state will comply with all applicable federal statues and regulation in effect with the respect to the periods for which it receives grant funding,
- Review and updates of the State Hazard Mitigation Plan every three years with submittal to the FEMA Region VIII, Director.

Acknowledgements

The Department of Public Safety, Division of Homeland Security, would like to acknowledge the following individuals and agencies for their dedication and valuable contribution to this document:

Association of Governments

- Bear River Association of Government
- Five County Association of Government
- Southeastern Association of Governments
- Wasatch Front Regional Council
- Uintah Basin Association of Government
- Mountainlands Association of Government
- Six County Association of Government

Association of Governments Hazard Mitigation Planning Technical Team

- Brad Bartholomew, DHLS
- LaNiece Dustman, WFRC
- DeeEll Fifield, WFRC
- Jeff Adams, SUAOLG
- Jim Boes, WFRC
- Jeff Gilbert, BRAG
- Ken Sizemore, FCAOG
- Curt Hutchings, FCAOG
- Andrew Jackson, MAG
- Emery Polelonema, SCAOG
- Edwin Benson, SCAOG
- Yankton Johnson, UBAOG

Utah State Hazard Mitigation Planning Committee

- Bradley Bartholomew
- Nancy Barr
- Jona Whitesides
- Amisha Lester
- John Crofts
- Bob Carey
- Katie Webb
- Josh Groeneveld

United States Army Corps of Engineers

- Scott Stoddard

State of Utah Hazard Mitigation Team

- Utah Geologic Survey

        - Gary Christenson
        - Richard Giraud
        - Steve Bowman
        - Chris DuRoss
    - National Weather Service
        - Kevin Barjenbruch
        - Brian McInerney
    - State Forestry, Fire, and State Lands
        - Shane Freeman
        - Tracy Dunford
        - Tyre Holfeltz
    - United States Army Corps of Engineers
        - Scott Stoddard
    - NRCS
        - Norm Evenstad
        - Ana Vargo
        - Bronson Smart
        - Ron Davidson
        - Randy Julander
    - Department of Environmental Quality
        - Kim Dykes
        - Kim Viehwig
    - Utah Department of Transportation
        - Chris Svarakis
    - United States Army Corps of Engineers
        - Scott Stoddard
    - Department of Natural Resources
        - Darren Rasmussen
        - Ken Short
        - Eric Larson
        - Matt Lindon
        - Dave Marble
    - Utah Department of Agriculture
        - Kyle Stephens
        - Chris Crnich
    - US Bureau of Reclamation
        - Dan Grundvig
        - Don Wintch
    - Utah Division of Homeland Security
        - Bob Carey
        - Judy Watanabe
        - Brad Bartholomew
        - Nancy Barr
        - John Crofts
        - Laura Siebeneck
        - Josh Groenveld

        - Katie Webb
    - US Geologic Survey
        - Paul Lambert
        - Cory Angeroth
        - Terry Kenney
    - Governors Office of Planning
        - Evan Curtis
    - Utah Dept. Technology
        - Jeannie Watanabe
        - David Buell
    - Salt Lake County Emergency Management
        - Kate Smith
        - Ben Teran
    - Utah Division Water Rights
        - Daren Rasmussen
    - Utah Dam Safety
        - Matt Lindon
        - Dave Marble
    - Utah Wildlife Services
        - Eric Larson
    - Utah Water Resources
        - Brian King
        - Ken Short

Local and County Governments

University of Utah

FEMA Region VIII

- Doug Bausch
- Joan Huston
- Mike Hillenburg
- Ryan Pietramali
- Julie Baxter

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STATE OF UTAH
HAZARD MITIGATION PLAN

March 2011

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All of the appendices are electronic and on a flash drive attached at the back of the plan. Hard copies can be obtained by contacting:

Utah Department of Public Safety
Division of Homeland Security
1110 State Office Building
Salt Lake City, Utah 84114
Point of Contact: Brad Bartholomew

SECTION ONE
INTRODUCTION

STATE OF UTAH
HAZARD MITIGATION PLAN

March 2011

Introduction

While a combination of hydrologic, geologic, and wildfire hazards face Utah's diverse landscape and settlements, this plan addresses primarily flood, wildfire, landslide, earthquake, and drought hazard mitigation. Hazard mitigation planning is the process of analyzing a set of conditions relative to a natural hazard to determine adequate mitigation efforts to reduce or eliminate impacts should that hazard become active to a prescribed level.

All hazards have an associated set of impact-causing conditions, once a hazard becomes active. An important aspect of hazard mitigation planning is to obtain adequate input from skilled professionals who work with specific hazards and their associated impacts. Through such input, the hazard mitigation planner can plan for those impact-causing conditions, which cause an unacceptable threat to life and to property. It is important to note not all threat to life and property is termed unacceptable, people must accept some risk for living where they do.

The objective of hazard mitigation planning is to describe mitigation measures that can reduce, as much as possible, or eliminate the threat from those unacceptable risk impact-causing conditions resulting from a hazard that may become active. The identification of what the community feels is an acceptable or unacceptable risk is essential in any mitigation Plan. From this concept of what can be and is being mitigated for, the planner then can assist the community in preparing for the potential threat of the hazard.

For example, within the realm of a hazard, it may be possible to mitigate for 40 percent of the potential impact associated with the threat through either structural or nonstructural measures. That being the case, theoretically, one might then be able to adequately prepare for the resulting 60 percent of the potential impact.

Plan Organized
The SHMP was developed and organized within the rules and regulations established under CFR Title 44, Part 201.6 of the Disaster Mitigation Act of 2000.

The plan contains a discussion on the purpose and methodology used to develop the plan, a profile on state and jurisdiction risk, as well as a hazard identification study and a vulnerability analysis of hazards. This includes the identification of new studies reports and technical information by hazard.

To assist in the explanation of those items the plan contains a section on each hazard with appendices providing more detail on specific subjects. This plan is intended to improve the state's ability to handle disasters, and will document valuable local knowledge on the most efficient and effective ways to reduce loss.

Plan Updated
The CFR Title 44, Part 201.6 of the Disaster Mitigation Act of 2000 requires that the SHMP be updated every three years. An updated plan is also required for the state to be

eligible to apply for PDM-C, HMGP, and FMA grants. It also allows eligible applicants to receive Federal assistance following a Presidentially declared disaster.

The Utah Division of Homeland Security (Utah DHLS) initiated the process to update the Utah Hazard Mitigation Plan in June 2010. The State Hazard Mitigation Planner, with support from the Mitigation and Recovery Section staff, was the planning lead. The group of mitigation specialists was identified as the State Hazard Mitigation Planning Committee (SHMPC). The SHMPC facilitate the planning process and updated the plan using FEMA state plan update guidance.

The SHMPC performed coordinating and organizing labor-intensive tasks, such as working with the SHMT on specific hazard and vulnerability assessments updates, facilitating meetings, sharing documents, and keeping the planning process on track. Draft of the mitigation plan was available on our website for review and comments.

Plan Description and Development Process

The Utah Hazard Mitigation Plan was originally developed and approved in 2004. The first major update to the plan was accomplished in 2007. The 2010 state plan update was led by the SHMPC. The 2010 state plan includes the most current and up to date information to include updated studies, reports, and technical reports, recognizing that no major natural hazard events warranted state or federal assistance occurred in the during the 2007-2010 planning cycle.

Participants in the planning process reviewed and agreed to keep the goals developed and defined utilizing the list of goals from the 2008 Plan, which are directly relevant to meeting the mission of the plan. The SHMPC, in discussion and meetings with the SHMT, and review from current regional mitigation plans, were a critical component of the goal review and revaluation process.

Coordination between and among participating agencies is the key to successful mitigation plan and any level of government. During this planning cycle, Federal and state agencies continued to work together as opportunities become available. The Pre-Disaster Mitigation Grant Program provided funding for three currently approved Regional Mitigation Plans. Four additional Regional Mitigation Plans have been funded through the Pre-Disaster Mitigation Grant Program.

Overall, the hazard mitigation management capabilities of the state have become better compared to when the last plan was approved. While there hasn't been an increase in staff resources, program staff is more experienced and communities seem to be more accepting of hazard mitigation concepts. However, the current funding environment is challenging at both the state and local level.

The Utah State Hazard Mitigation Planning Committee (SHMPC) agreed that updated material, to include, but not be limited to, statistical numbers, census, disaster losses, vulnerability analysis, and mitigation strategies, would not be identified in the plan as "new" or "updated" information. The SHMPC continues to allow the updated plan to be

used and identified as the "State Hazard Mitigation Plan", not an "Update to the State Hazard Mitigation Plan". All of the previous FEMA approved Utah State Hazard Mitigation Plans are available to review.

The introduction and conclusion to the plan have been updated to outline the process and changes that have taken place in the last three years. All sections of the plan were updated to reflect comments from FEMA and contractors in the crosswalk. The mitigation strategies were updated to reflect the Local Hazard Mitigation Plan's (LHMP) that have been completed as well as statewide mitigation strategies.

Plan Should Be Used
This plan was written and updated to provide usefulness in four areas.

1. First, the plan should be used to assist state and local agencies in implementing programs and projects that reduce the state's overall vulnerability to natural hazards.
2. Second, the plan should be used as an aid to facilitate inter-governmental coordination and collaboration related to natural hazard mitigation planning and subsequent plan implementation.
3. Third, the plan serves as a comprehensive strategy for dealing with natural disasters.
4. Fourth, the plan will bring the state into compliance with the Disaster Mitigation Act of 2000 and maintain state eligibility for federal mitigation funding.

This mitigation plan is similar to all state natural hazard mitigation plans. As discussed in previous updates to this plan, this is not a comprehensive end all list of mitigation strategies. This plan is and must continue to be a living document; dynamically changing with Utah's transforming environment and ever-changing technology. For this reason, the state will add, subtract, or augment this plan as it sees necessary to best meet the goals of the plan.

Scope
The Utah Hazard Mitigation Plan 2010 update is a statewide plan addressing the natural hazards of dam failure, drought, earthquake, flooding, landslide, severe weather and wildfire. The Technological and Man-Made Annex from the 2008 plan has been updated and included the plan. It is no longer an annex to the plan.

A more detailed focus on local risk and local mitigation can be found in the multi-jurisdictional plans completed by the Associations of Governments (AOG), which encompass all twenty-nine counties and two hundred and sixty-five incorporated municipalities, and five Indian tribes. This plan summarizes finding in the AOG document as well as meets state requirements in the Disaster Mitigation Act of 2000.

Purpose
The purpose of this plan is to promote pre and post disaster mitigation measures, short/long range strategies that minimize suffering, loss of life, and damage to property

resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the state are exposed; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, the economy, environment, and the well-being of the state of Utah; to fulfill federal, state, and local hazard mitigation planning responsibilities. This plan update is an aid in enhancing state officials, agencies, and public awareness to the threat that hazards have on property and life and what can be done to help prevent or reduce the vulnerability and risk of each Utah jurisdiction.

Authority

Federal

Public Law 93-288 as amended, established the basis for federal hazard mitigation activity in 1974. A section of this Act requires the identification, evaluation, and mitigation of hazards as a prerequisite for state receipt of future disaster assistance outlays. Since 1974, many additional programs, regulations, and laws have expanded on the original legislation to establish hazard mitigation as a priority at all levels of government. When PL 93-288 was amended by the Stafford Act, several additional provisions were also added that provide for the availability of significant mitigation measures in the aftermath of Presidential declared disasters. Civil Preparedness Guide 1-3, Chapter 6- Hazard Mitigation Assistance Programs places emphasis on hazard mitigation planning directed toward hazards with a high impact and threat potential.

The Disaster Mitigation Act of 2000

In the past, federal legislation has provided funding for disaster relief, recovery, and some hazard mitigation planning. The Disaster Mitigation Act of 2000 (DMA 2000) is the latest legislation, was put into motion on October 10, 2000, when the President signed the Act (Public Law 106-390). The new legislation reinforces the importance of mitigation planning and emphasizes planning for disasters before they occur. As such, this Act establishes a pre-disaster hazard mitigation program and new requirements for the national post-disaster Hazard Mitigation Grant Program (HMGP) Section 322, of the Act, specifically addresses mitigation planning at the state and local levels. Also included were new requirements that allow HMGP funds to be used for planning activities, and increases the amount of HMGP funds available to states that have developed a comprehensive or enhanced mitigation plan prior to a disaster. States and communities must have an approved mitigation plan in place prior to receiving both pre and post-federal disaster funds. Local and tribal mitigation plans must demonstrate that their proposed mitigation measures are based on a sound planning process that accounts for the risk to and the capabilities of the individual communities.

State governments have certain responsibilities for implementing Section 322, including:

- Preparing and submitting a standard or enhanced state mitigation plan;
- Reviewing and updating the state mitigation plan every three years;
- Providing technical assistance and training to local governments to assist them in applying for HMGP grants and in developing local mitigation plans; and

- Reviewing and approving local plans if the state is designated a managing state and has an approved enhanced plan.

DMA 2000 is intended to facilitate cooperation between state and local authorities, prompting them to work together. It encourages and rewards local and state pre-disaster planning and promotes sustainability as a strategy for disaster resistance. This enhanced planning network will better enable local and state governments to articulate accurate needs for mitigation, resulting in faster allocation of funding and more effective risk reduction projects.

To implement the new DMA 2000 requirements, FEMA prepared an Interim Final Rule, published in the Federal Register on February 26, 2002, at 44 CFR Parts 201 and 206, which establishes planning and funding criteria for states and local communities.

State Authority

- The Governor's Emergency Operation Directive
- The Robert T. Stafford Disaster Relief and Emergency Assistance Act, amendments to Public Law 93-288, as amended.
- Title 44, CFR, Federal Emergency Management Agency Regulations, as amended.
- State Emergency Management Act of 1981, Utah Code 53-2, 63-5.
- Disaster Response Recovery Act, 63-5A.
- Executive Order of the Governor, Executive Order 11
- Emergency Interim Succession Act, 63-5B.

Utah State Code

In Utah Code 53-2-104, it is stated that the Utah Division of Homeland Security shall: (c) prepare, implement, and maintain programs and plans to provide for:

(i) Prevention and minimization of injury and damage caused by disasters:
(iii) Identification of areas particularly vulnerable to disasters;
(iv) Coordination of hazard mitigation and other preventive and preparedness measures designed to eliminate or reduce disasters;
(v) Assistance to local officials in designing local emergency action plans;
(vi) Coordination of federal, state, and local emergency activities;
(vii)Coordination of emergency operations plans with emergency plans of the federal government; and
(x) Other measures necessary, incidental, or appropriate to this chapter.

Assurances to Comply with Federal Laws and Regulations

Requirement §201.4(c)(7): The plan must include assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

Through the development and enforcement of this plan, the assurances listed below are provided as documentation that the state or any subsequent sub-grantee (recipients) that

receives federal grant funding will continue to comply with all applicable Federal statutes and regulations. Additionally, the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

To the extent the following provisions apply to the award of assistance:
(a) Recipient possesses legal authority to enter into agreements, and to execute the proposed programs;

(b) Recipient's governing body has duly adopted or passed as an official act a resolution, motion or similar action authorizing the execution of hazard mitigation agreements, including all understandings and assurances contained therein, and directing and authorizing the Recipient's chief administrative officer or designee to act in connection with any application and to provide such additional information as may be required;

(c) No member of or delegate to the Congress of the United States, and no Resident Commissioner shall be admitted to any share or part of any agreement or to any benefit to arise from the same. No member, officer, or employee of the Recipient or its designees or agents, no member of the governing body of the locality in which the program is situated, and no other public official of such locality or localities who exercises any functions or responsibilities with respect to the program during his tenure or for one year thereafter, shall have any interest direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed in connection with the program assisted under this plan. The Recipient shall incorporate or cause to be incorporated, in all such contracts or subcontracts a provision prohibiting such interest pursuant to the purpose state above;

(d) All Recipient contracts for which the State Legislature is in any part a funding source, shall contain language to provide for termination with reasonable costs to be paid by the Recipient for eligible contract work completed prior to the date the notice of suspension of funding was received by the Recipient. Any cost incurred after a notice of suspension or termination is received by the Recipient may not be funded with funds provided under a grant agreement unless previously approved in writing by the Department. All Recipient contracts shall contain provisions for termination for cause or convenience and shall provide for the method of payment in such event;

(e) Recipient will comply with:
(1) Contract Work Hours and Safety Standards Act of 1962, 40 U.S.C. 327 et seq., requiring that mechanics and laborers (including watchmen and guards) employed on federally assisted contracts be paid wages of not less than one and one-half times their basic wage rates for all hours worked in excess of forty hours in a work week; and
(2) Federal Fair Labor Standards Act, 29 U.S.C. Section 201 et seq., requiring that covered employees be paid at least the minimum prescribed wage, and also that they

be paid one and one-half times their basic wage rates for all hours worked in excess of the prescribed work-week.

(f) Recipient will comply with:

(1) Title VI of the Civil Rights Act of 1964 (P.L. 88-352), and the regulations issued pursuant thereto, which provides that no person in the United States shall on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Recipient receives Federal financial assistance and will immediately take any measures necessary to effectuate this assurance. If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Recipient, this assurance shall obligate the Recipient, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits;

(2) Any prohibition against discrimination on the basis of age under the Age Discrimination Act of 1975, as amended (42 U.S.C.: 6101-6107), which prohibits discrimination on the basis of age or with respect to otherwise qualified handicapped individuals as provided in Section 504 of the Rehabilitation Act of 1973;

(3) Executive Order 11246 as amended by Executive Orders 11375 and 12086, and the regulations issued pursuant thereto, which provide that no person shall be discriminated against on the basis of race, color, religion, sex or national origin in all phases of employment during the performance of federal or federally assisted construction contracts; affirmative action to insure fair treatment in employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff/termination, rates of pay or other forms of compensation; and election for training and apprenticeship;

(g) The Recipient agrees to comply with the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. Section 12101 et seq.), where applicable, which prohibits discrimination by public and private entities on the basis of disability in the areas of employment, public accommodations, transportation, State and local government services, and in telecommunications;

(h) Recipient will establish safeguards to prohibit employees from using positions for a purpose that is or gives the appearance of being motivated by a desire for private gain for themselves or others, particularly those with whom they have family, business, or other ties pursuant to Section 112.313 and Section 112.3135, FS;

(i) Recipient will comply with the Anti-Kickback Act of 1986, 41 U.S.C.

Section 51, which outlaws and prescribes penalties for "kickbacks" of wages in federally financed or assisted construction activities;

(j) Recipient will comply with the provisions of 18 USC 594, 598, 600-605 (further known as the Hatch Act) which limits the political activities of employees;

(k) Recipient will comply with the flood insurance purchase and other requirements of the Flood Disaster Protection Act of 1973 as amended, 42 USC 4002-4107, including requirements regarding the purchase of flood insurance in communities where such insurance is available as a condition for the receipt of any Federal financial assistance for construction or acquisition purposes for use in any area having special flood hazards. The phrase "Federal financial assistance" includes any form of loan, grant, guaranty, insurance payment, rebate, subsidy, disaster assistance loan or grant, or any other form of direct or indirect Federal assistance;

(l) Recipient will require every building or facility (other than a privately owned residential structure) designed, constructed, or altered with funds provided under a grant agreement to comply with the "Uniform Federal Accessibility Standards," (AS) which is Appendix A to 41 CFR Section 101-19.6 for general type buildings and Appendix A to 24 CFR Part 40 for residential structures. The Recipient will be responsible for conducting inspections to ensure compliance with these specifications by the contractor;

(m) Recipient will, in connection with its performance of environmental assessments under the National Environmental Policy Act of 1969, comply with Section 106 of the National Historic Preservation Act of 1966 (U.S.C. 470), Executive Order 11593, 24 CFR Part 800, and the Preservation of Archaeological and Historical Data Act of 1966 (16 U.S.C. 469a-1, et seq.) by:

(1) Consulting with the State Historic Preservation Office to identify properties listed in or eligible for inclusion in the National Register of Historic Places that are subject to adverse effects (see 36 CFR Section 800.8) by the proposed activity; and

(2) Complying with all requirements established by the State to avoid or mitigate adverse effects upon such properties.

(3) Abiding by the terms and conditions of the "Programmatic Agreement among the Federal Emergency Management Agency, the Utah State Historic Preservation Office," which addresses roles and responsibilities of Federal and State entities in implementing Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. 470f, and implementing regulations in 36 CFR part 800.

(4) Notifying FEMA and the state if any project may affect a historic property. When any of Recipient's projects funded under a grant agreement may affect a historic property, as defined in 36 CFR 800. (2)(e), the Federal

Emergency Management Agency (FEMA) may require Recipient to review the eligible scope of work in consultation with the State Historic Preservation Office (SHPO) and suggest methods of repair or construction that will conform with the recommended approaches set out in the Secretary of Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings 1992 (Standards), the Secretary of the Interior's Guidelines for Archeological Documentation, (Guidelines) (48 Federal Register 44734-37), or any other applicable Secretary of Interior standards. If FEMA determines that the eligible scope of work will not conform with the Standards, Recipient agrees to participate in consultations to develop, and, after execution by all parties, to abide by, a written agreement that establishes mitigation and recondition measures, including but not limited to, impacts to archeological sites, and the salvage, storage, and reuse of any significant architectural features that may otherwise be demolished.

(5) Notifying FEMA and the state if any project funded under a grant agreement will involve ground disturbing activities, including, but not limited to: subsurface disturbance; removal of trees; excavation for footings and foundations; and installation of utilities (such as water, sewer, storm drains, electrical, gas, leach lines and septic tanks) except where these activities are restricted solely to areas previously disturbed by the installation, replacement or maintenance of such utilities. FEMA will request the SHPO's opinion on the potential that archeological properties may be present and be affected by such activities. The SHPO will advise Recipient on any feasible steps to be accomplished to avoid any National Register eligible archeological property or will make recommendations for the development of a treatment plan for the recovery of archeological data from the property.

If Recipient is unable to avoid the archeological property, it will develop, in consultation with the SHPO, a treatment plan consistent with the Guidelines and take into account the Advisory Council on Historic Preservation (Council) publication "Treatment of Archeological Properties". Recipient shall forward information regarding the treatment plan to FEMA, the SHPO and the Council for review. If the SHPO and the Council do not object within 15 calendar days of receipt of the treatment plan, FEMA may direct Recipient to implement the treatment plan. If either the Council or the SHPO object, Recipient shall not proceed with the project until the objection is resolved.

(6) Notifying the state and FEMA as soon as practicable: (a) of any changes in the approved scope of work for a National Register eligible or listed property; (b) of all changes to a project that may result in a supplemental DSR or modify an HMGP project for a National Register eligible or listed property; (c) if it appears that a project funded under a grant agreement will affect a previously unidentified property that may be eligible for inclusion in the National Register or affect a known historic property in an unanticipated manner. Recipient acknowledges that FEMA may require Recipient to stop construction in the vicinity of the discovery of a previously unidentified property that may be eligible for inclusion in the National Register or upon learning that construction may affect a known historic property in an unanticipated manner. Recipient further acknowledges that FEMA may require Recipient to take all reasonable measures to avoid

or minimize harm to such property until FEMA concludes consultation with the SHPO. Recipient also acknowledges that FEMA will require, and Recipient shall comply with, modifications to the project scope of work necessary to implement recommendations to address the project and the property.

(7) Acknowledging that, unless FEMA specifically stipulates otherwise, it shall not receive funding for projects when, with intent to avoid the requirements of the PA or the NHPA, Recipient intentionally and significantly adversely affects a historic property, or having the legal power to prevent it, allowed such significant adverse affect to occur.

(n) Recipient will comply with Title IX of the Education Amendments of 1972, as amended (20 U.S.C.: 1681-1683 and 1685 - 1686) which prohibits discrimination on the basis of sex;

(o) Recipient will comply with the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970, (42 U.S.C. 4521-45-94) Relating to nondiscrimination on the basis of alcohol abuse or alcoholism;

(p) Recipient will comply with 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records;

(q) Recipient will comply with Lead-Based Paint Poison Prevention Act (42 U.S.C.: 4821 et seq.) which prohibits the use of lead based paint in construction of rehabilitation or residential structures;

(r) Recipient will comply with the Energy Policy and Conservation Act (P.L. 94-163; 42 U.S.C. 6201-6422), and the provisions of the state Energy Conservation Plan adopted pursuant thereto;

(s) Recipient will comply with the Laboratory Animal Welfare Act of 1966, 7 U.S.C. 2131-2159, pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by an award of assistance under this agreement;

(t) Recipient will comply with Title VIII of the Civil Rights Act of 1968, 42 U.S.C. 2000c and 42 3601-3619, as amended, relating to non-discrimination in the sale, rental, or financing of housing, and Title VI of the Civil Rights Act of 1964 (P.L. 88-352), which prohibits discrimination on the basis of race, color or nation origin;

(u) Recipient will comply with the Clean Air Act of 1955, as amended, 42 U.S.C. 7401-7642;

(v) Recipient will comply with the Clean Water Act of 1977, as amended, 42

U.S.C. 7419-7626;

(w) Recipient will comply with the Endangered Species Act of 1973, 16 U.S.C. 1531-1544;

(x) Recipient will comply with the Intergovernmental Personnel Act of 1970, 42 U.S.C. 4728-4763;

(y) Recipient will assist the awarding agency in assuring compliance with the National Historic Preservation Act of 1966, as amended, 16 U.S.C. 270;

(z) Recipient will comply with environmental standards, which may be prescribed pursuant to the National Environmental Policy Act of 1969, 42 U.S.C. 4321-4347;

(aa) Recipient will assist the awarding agency in assuring compliance with the Preservation of Archeological and Historical Preservation Act of 1966, 16 U.S.C. 469a, et seq;

(bb) Recipient will comply with the Rehabilitation Act of 1973, Section 504, 29 U.S.C. 794, regarding non-discrimination;

(cc) Recipient will comply with the environmental standards, which may be prescribed pursuant to the Safe Drinking Water Act of 1974, 42 U.S.C. 300f-300j, regarding the protection of underground water sources;

(dd) Recipient will comply with the requirements of Titles II and III of the Uniform Relocation Assistance and Property Acquisition Policies Act of 1970, 42 U.S.C. 4621-4638, which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally assisted programs;

(ee) Recipient will comply with the Wild and Scenic Rivers Act of 1968, 16 U.S.C. 1271-1287, related to protecting components or potential components of the national wild and scenic rivers system;

(ff) Recipient will comply with the following Executive Orders: EO 11514 (NEPA); EO 11738 (violating facilities); EO 11988 (Floodplain Management); EO 11990 (Wetlands); and EO 12898 (Environmental Justice);

(gg) Recipient will comply with the Coastal Barrier Resources Act of 1977, 16 U.S.C. 3510;

(hh) Recipient will assure project consistency with the approved State program developed under the Coastal Zone Management Act of 1972, 16 U.S.C. 1451-1464; and

(ii) Recipient will comply with the Fish and Wildlife Coordination Act of 1958; 16 U.S.C. 661-666.

(jj) With respect to demolition activities, recipient will:

1. Create and make available documentation sufficient to demonstrate that the recipient and its demolition contractor have sufficient manpower and equipment to comply with the obligations as outlined in a grant agreement.

2. Return the property to its natural state as though no improvements had ever been contained thereon.

3. Furnish documentation of all qualified personnel, licenses and all equipment necessary to inspect buildings located in Recipient's jurisdiction to detect the presence of asbestos and lead in accordance with requirements of the U.S. Environmental Protection Agency, the Utah Department of Environmental Protection and the County Health Department.

4. Provide documentation of the inspection results for each structure to indicate:

a. Safety Hazards Present
b. Health Hazards Present
c. Hazardous Materials Present

5. Provide supervision over contractors or employees employed by Recipient to remove asbestos and lead from demolished or otherwise applicable structures.

6. Leave the demolished site clean, level and free of debris.

7. Notify the Department promptly of any unusual existing condition, which hampers the contractor’s work.

8. Obtain all required permits.

9. Provide addresses and marked maps for each site where water wells and septic tanks are to be closed along with the number of wells and septic tanks located on each site. Provide documentation of closures.

10. Comply with mandatory standards and policies relating to energy efficiency that are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act (Public Law 94-163).

11. Comply with all applicable standards, orders, or requirements issued under Section 112 and 306 of the Clean Air Act (42 U.S.C. 1857 (h), Section 508 of the Clean Water Act (33 U.S. 1368), Executive Order 11738, and the U.S. Environmental Protection Agency regulations (40 CFR Part 15 and 61).

This clause shall be added to any subcontracts.

12. Provide documentation of public notices for demolition activities.

(kk). Comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with 44 CFR 13.11(c). The State will amend its plan whenever necessary to reflect changes in State or Federal laws and statutes as required in 44 CFR 13.11(d).

Planning Process

Requirement §201.4(c)(1): [The State plan must include a] description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how other agencies participated.

State Natural Hazard Mitigation Planning Process

The planning process for the 2010 update of the Utah State Hazard Mitigation Plan basically followed the same guidance in the previous plan. The Local Hazard Mitigation Plans (LHMP) are updated every five years The LHMPs that have been updated and approved since the last update of this plan include; The Wasatch Front Regional Council, Bear River AOG and Mountainlands AOG mitigation plans. Four AOG LHMP's are in the process of being updated using PDM grant funds. The University of Utah has completed a LHMP that has been approved by FEMA.

In view of the fact that mitigation planning is an ongoing process there are three ongoing steps for Utah's overall mitigation planning process:

- Determine Need and Overall State Hazard Mitigation Planning Process
- State Support for Multi-Jurisdictional Mitigation Plans
- Development and Update of State Hazard Mitigation Plan

Determine Need and Overall State Hazard Mitigation Planning Process
In 2000 Congress passed the Disaster Mitigation Act of 2000 (DMA 2000). This act required states, local governments and tribes to have a FEMA approved Pre-disaster Hazard Mitigation Plan (HMP). States are required to have an approved State Hazard Mitigation Plan (SHMP) in order to qualify for future funding through the post-disaster Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) Program. With an approved local hazard mitigation plan, communities will be eligible for hazard mitigation planning and project grants. An approved SHMP and LHMP qualify the State and local communities to receive federal disaster assistance following a Presidential Disaster Declaration.

<u>Assess Planning Capabilities</u>
How the state was going to complete a state mitigation plan and administer a program, which ensured successful mitigation planning at the local level in a post 9/11

environment, continues to be a challenge. The new emphasis on homeland security and the grants and programs offered by various federal agencies, was proving taxing on county and city emergency program managers. Typically, emergency managers would have been funded to complete county mitigation plans, as mitigation is one of the core functions of emergency managers and the four-phase approach to providing citizen safety.

The new requirements placed an emphasis on assessing risk and vulnerability at the local level. The higher level of detail required in the local plans had not been completed in the state prior to the DMA 2000 requirement. It was determined assessing risk and determining vulnerability could only be carried out through use of Geographic Information Systems GIS. Fortunately, Utah has an abundance of natural hazard GIS base layers to use in the analysis.

The SHMPC determined that most counties still do not have the resources to complete mitigation plans for the level of funding, available to them. The State is hopeful, that many of the urban counties along the Wasatch Front, will look to PDM for future planning funds. This will allow for a more comprehensive look at a more detailed vulnerability and risk assessment and ultimately and more effective county mitigation plan.

The state has a number of agencies with proficiency in natural hazards and natural hazard mitigation, the Utah Geologic Survey, Dam Safety, Water Resources, and Forestry, Fire, and State Lands to name a few. These agencies have been willing to provide input on mitigation plans but did not have the resources to aid all 29 counties and 265 cities.

As the State began to update of the 2010 SHMP, Utah DHLS planning capabilities included the SHMO, two mitigation planners and a Risk Assessment Coordinator. Federal funding for these positions is limited and duel responsibilities are always included in the position descriptions. The staff assigned to work on the State Plan met as needed and participated in meetings focusing directly on the State mitigation planning requirements.

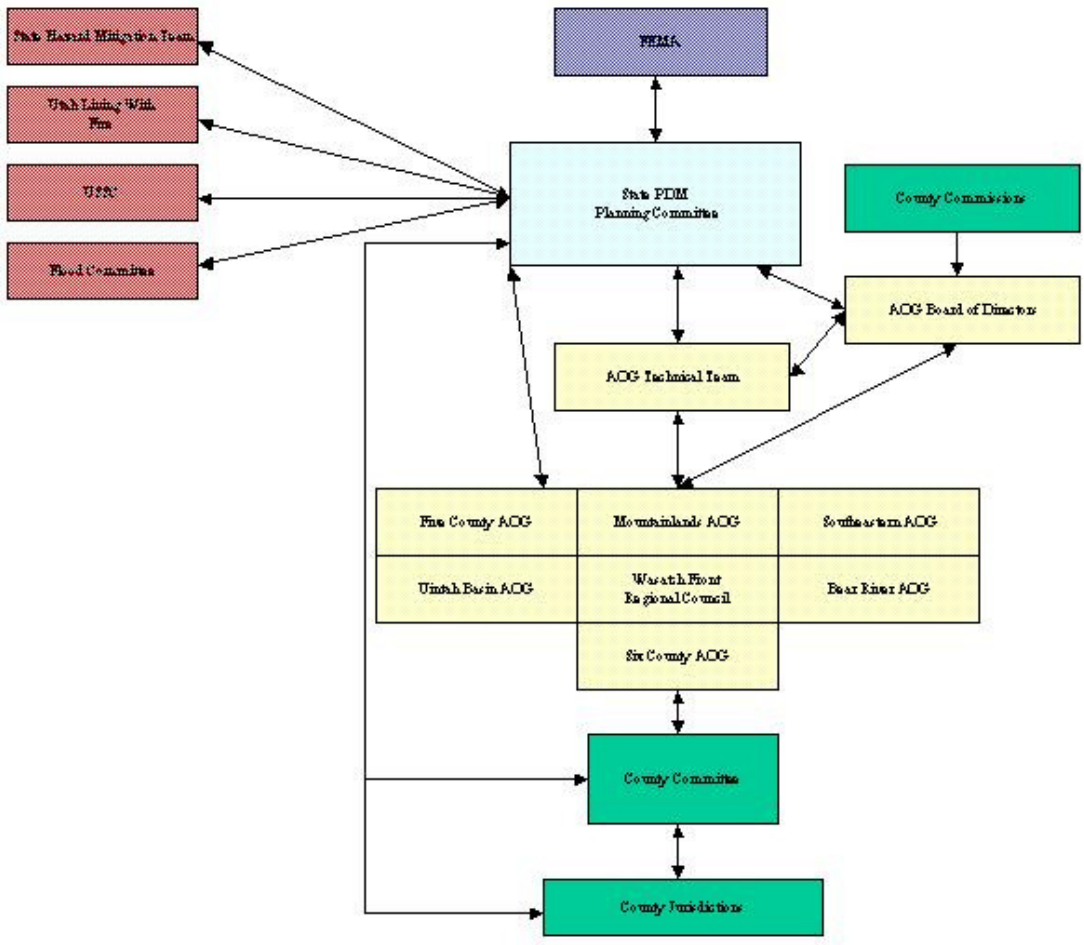
Overall, the hazard mitigation management capabilities of the state have become better compared to when the last plan was approved. While there hasn't been an increase in staff resources, program staff is more experienced and communities seem to be more accepting of hazard mitigation concepts. However, the current funding environment is challenging at both the state and local level.

Contract Seven Associations of Government

It was determined following the analysis of state and local capabilities to meet the DMA 2000 requirements that; the state needed:

1. Planning entity with a dedicated planner,
2. GIS analyst,
3. Experience dealing with the elected officials on a more local level.
4. Already exist and have a working relationship with the locals.

It was determined with assistance from the State Office of Planning and Budget that the seven Associations of Government meet the requirements Utah DHLS was looking for. The AOG's have the resources needed for updating the mitigation plans successfully and this is why the state continues to us them to update the LHMP. For the initial 2002-planning grant the State utilized the Associations of Governments (AOG), contracts were put in place to complete natural hazard mitigation plans for those jurisdictions represent by each AOG.



State Support Multi-Jurisdictional Mitigation Planning

Coordination with Associations of Government

There are ongoing LHMP efforts taking place across the state of Utah. DHLS works continually with the AOG's to ensure they are completing plans and containing the elements that meet the DMA 2000 requirements while at the same time producing plans that are useful for local governments. An enormous amount of coordination has taken and will continue to take place between Utah DHLS and the seven AOGs. This coordination

includes participation at Association of Governments Board of Directors meetings, involvement in local jurisdictions when meeting with the AOGs, training, data acquisition, presentations at elected officials meetings in support of PDM, and technical support. The completed plans prove the close working relationship is beneficial.

Supporting Association of Governments Planning

Data and Information

A considerable amount of information was gathered at the onset and though out the mitigation planning process. This information was disseminated to the seven Associations of Government and county governments. Each of the AOG updates includes collecting the most up to date and available data there is. Information includes:

- GIS data on fault locations, fault zones, wildfire risk, flooding, dam location and hazard rating, landslide and debris flow location, business data, and critical facilities.
- Flood Insurance Rate Maps and Flood Insurance Studies
- History of past disaster occurrences
- Studies and technical reports

Development of Loss Estimation Methodology

Loss estimates in each AOG plan, were the result of methodology developed by the AOG technical team in conjunction with DHLS. Methodology used to ascertain loss in each multi-jurisdictional plan differs slightly. This difference is due in part to differences in data, data quality, and data availability.

Provide Subject Matter Experts

Upon request SHMPC provided or coordinated technical experts to assist in developing both local mitigation strategies and multi-jurisdictional plans. These experts were primarily part of the State Hazard Mitigation Team (SHMT) with technical expertise in the following areas:

- Mitigation
- Geology
- Meteorology
- Engineering
- Climate
- Water Resource Management
- Wildfire
- Dam Safety
- Floodplain Management

Multi-Jurisdictional Plan Review

Mitigation plans submitted by each AOG are formally reviewed as they are submitted to the State for review. These reviews are conducted by the SHMPC with each member reviewing and commenting on the plan. Plans are reviewed against the FEMA crosswalk. Additional plan reviews are completed at the request of either the AOG or

county with several reviews taking place per AOG. To prevent slowing the planning process and meet timelines, plans are returned to the AOG within 30 calendar days.

Public Officials Outreach

Completed local mitigation plans must be approved and promulgated by the jurisdictions. Understanding this could be problematic; the members of the SHMPC will make presentations to elected officials and jurisdiction representatives at the City and County Directors meetings, the League of Cities and Towns meeting, and various other elected officials meetings when requested. The planning committee also designed presentations and will encourage each AOG to present to elected officials in their planning district. This will bring on board those with the final responsibility of approving the plan at the beginning of the planning process.

Mitigation Training

Mitigation and the concept of mitigation is an area of emergency management is sometimes neglected at the national, state and local levels for some time. While most county emergency managers have a general understanding of mitigation most will benefit from a refresher on new techniques and programs. SHMPC members conduct training during the LHMP update process. The FEMA G-318 Local mitigation planning training course has been taught at least once a year as AOG's have been awarded PDM grants to update their plans.

Development and Update of State Hazard Mitigation Plan

Each section of the plan was initially reviewed by the SHMPC. This review was based on new and updated information and data from the risk analysis and vulnerability assessment. This allowed for a more efficient update to the plan.

The SHMPC then highlighted those sections of the plan that reflected new or updated information and had the SHMT members review the plan. The SHMT members were asked to update and comment on those sections related to the hazard specific expertise. They were also asked to review the entire plan to ensure continuity in the planning process. The SHMT represents state, Federal and local partners, allowing for a more broad based approach in the review process and a hazard specific analysis based on new and updated information. Their comments and updates were incorporated into the final plan through the SHMPC.

The local plans "roll up" into the state plan and are done when the state plan is updated. Three regional plans have been updated since the last state plan update and have been included into the state plan. Four regional plans are in the process of being updated and will be included in the next state plan update.

Coordination with State Hazard Mitigation Team (SHMT)

The State Hazard Mitigation Team (SHMT) has and will continue to be the cornerstone of any mitigation plan or project within the state of Utah. The SHMT is comprised of technical experts, representing numerous state and federal agencies. The SHMPC

worked directly with the numerous subject matter experts on the SHMT during the update of this mitigation plan.

At the beginning of this planning cycle, the SHMT was asked to review the hazard specific information in the current SHMP 2007. The SHMPC worked directly with the SHMT to gather updated information. This outreach was conducted by phone, meetings, group discussions at the quarterly SHMT Meetings and the annual Spring State Natural Hazards Outlook Conference held in Salt Lake City.

It became apparent early on in the review process that new information was limited. In discussions with the SHMT, they also agreed that there was little new information that needed to be included in the Plan update. Lack of funding (Federal/state/local) to pursue additional risk assessment data was a consistent part of the discussion and evaluation process for all agencies involved in the SHMT.

Coordination among State and Federal Agencies

The SHMPC served as the single point of contact for most state and federal agencies resources utilized in the planning process. During the original planning process, subject matter experts, from state and federal agencies were used to verify information in the development of the SHMP and continue to be utilized during the update of this plan as well as reviewing of multi-jurisdiction mitigation plans submitted by the association of governments.

Complete State Hazard Mitigation Plan Update

The SHMPC, with the help of the SHMT, was able to update the SHMP and meet the FEMA requirements. The SHMT was a vital element of the original planning process in providing technical expertise and continue to be a vital element in updating disaster history and obtaining and reviewing hazard and vulnerability date that was data.

Sections were split from the state mitigation plan for review. Each member of the SHMT reviewed sections of the plan pertinent to their field of expertise. Additionally the plan was put on the Utah DHLS website and comments were solicited from interested parties.

The plan contains a discussion on the purpose and methodology used to develop the plan, a profile on state and jurisdiction risk, as well as a hazard identification study and a vulnerability analysis of hazards. To assist in the explanation of those items the plan contains a section on each hazard with appendices providing more detail on specific subjects.

Integration with Existing Plans

Several planning efforts, some similarly initiated by Department of Homeland Security, always appear to be taking place simultaneously to the PDM process. These planning initiatives include planning for the Flood Map Modernization Program/Risk MAP, The Office of Domestic Preparedness, County updates of their Emergency Operations/Preparedness Plans to include Terrorism Annexes, and Envision Utah Program planning programs. These planning programs are further discussed, in

subsequent sections of this plan. Every attempt was made to coordinate these planning efforts to reduce duplication of effort.

Comment Period: The State Hazard Mitigation Plan, in draft, was submitted to FEMA Region VIII in December 2010. The SHMP was included on the Utah Division of Homeland Security website, http://homelandsecurity.utah.gov for comment. A Public Notice was placed in the legal section of several major newspapers requesting comment. Readers were allowed to submit comments for thirty days. Comments received have been included in Appendix A

The planning process included the following steps:

1. Resource Organization
2. Public Officials Outreach
3. Establish Continuity in Planning Process
4. Data Acquisition
5. Hazard Risk Identification and Analysis
6. County Vulnerability Assessment
7. Community Goals Assessment
8. Formation of County Mitigation Steering Committee
9. Mitigation Strategy Development
10. Prioritization of Identified Mitigation Strategies
11. State Plan Review
12. Adoption

Utah State Hazard Mitigation Planning Committee (SHMPC)

The Utah State Department of Public Safety, Division of Homeland Security (DHLS) is the lead agency responsible for coordinating the development of the State Hazard Mitigation Plan. Staff members from DHLS updated the SHMP with assistance from our most significant partner the State Hazard Mitigation Team (SHMT). The process utilized by DHLS to update the SHMP was a result of a strengthening and augmentation of the process used over the last 20 years, to complete previous state hazard mitigation plans. The state plan and process used to create it, relied heavily on mitigation and program experts from the DHLS and numerous state agencies.

Based on the previous planning update the Utah State Hazard Mitigation Planning Committee (SHMPC) was brought back as the core hazard mitigation planning body within the state. This planning team was tasked with updating the SHMP, coordinating with state agencies, and will be providing technical assistance to the seven AOG, reviewing their plans and representing DHLS on various committees and commissions related to mitigation. The SHMPC is comprised of:

Brad Bartholomew	State Hazard Mitigation Officer, Planning Lead
John Crofts	State Floodplain Manager
Nancy Barr	Recovery & Mitigation Section Manager
Jona Whitesides	Recovery & Mitigation Planner
Bob Carey	State Earthquake Program Manager

Amisha Lester	Risk Map Coordinator
Josh Groeneveld	Risk Assessment Coordinator
Katie Webb	Recovery & Mitigation Planner

State Hazard Mitigation Team Plan Review

Members of the Utah State Hazard Mitigation Planning Committee (SHMPC) reviewed the plan prior to the update. The SHMT was utilized by updating their respective portions of the SHMP. The SHMPC agreed that updated material, to include but not be limited to, statistical numbers, disaster losses, vulnerability analysis, and mitigation strategies, would not be identified in the plan as "new" or "updated" information. The SHMPC believes this allows the updated plan to be used and identified as the "State Hazard Mitigation Plan", not an "Update to the State Hazard Mitigation Plan". All three versions of the update plans are available to review and compare should a reviewer or reader wish to do so.

Association of Government Planning Process

This planning process was used for the initial creation of the Local Hazard Mitigation Plans (LHMP). Since the SHMP is updated every three years and LHMP's are updated every five years, the SHMP will be updated before any of the LHMP's. The planning process for the LHMP will remain relatively the same. Any changes in the process will be noted in the next SHMP update. The LHMPs that have been updated and approved since the last update of this plan include; The Wasatch Front Regional Council, Bear River AOG and Mountainland AOG mitigation plans. Four AOG LHMP's are in the process of being updated using PDM grant funds. The University of Utah has completed a LHMP that has been approved by FEMA.

The planning process suggested by the Utah DHLS and carried out by the seven AOG is being discussed to explain the utility of having two separate but integrated planning processes. A more detailed explanation of the planning processes individual Associations used to complete their plans can be found in each of the seven multi-jurisdictional plans. The state contracted with the AOG to complete a PDM plan for the counties in their planning area. When the planning requirement in DMA 2000 was released the state determined it would be best to complete regional or multi-jurisdictional mitigation plans rather than a single jurisdiction or countywide plans. The SHMPC is considering future local mitigation planning efforts will be focused on County mitigation plans. This county specific planning effort will focus on the Wasatch Front.

For the initial mitigation planning process GIS technicians and senior planners from each AOG were asked by the AOG Board of Directors to form a technical PDM planning team. The core group met regularly to share ideas, concentrates limited resources, and ensures plans were similar in methodology selection. State technical assistance was made available to this group throughout the process when requested. A member of SHMPC served as chair of the AOG technical committee to facilitate coordination and ensure their needs were fully met.

Coordination Among State Agencies

Requirement §201.4(b): The [State] mitigation planning process should include coordination with other State agencies, appropriate Federal agencies, interested groups,

The Utah State Hazard Mitigation Planning Committee (SHMPC) coordinated the development and update of the State Hazard Mitigation Plan with other state, federal, and local agencies. Coordination among state and federal agencies involved in the planning process was primarily concentrated into seven organizations or planning councils with members representing virtually all state, federal, and local agencies with responsibility related to natural hazards. These seven principle agencies are: the State Hazard Mitigation Team, Utah Seismic Safety Commission, Associations of Governments, Utah Living with Fire Committee, City and County Emergency Managers, The Utah Floodplain and Stormwater Management Association and the Governor's Geo-Hazards Working Group.

Coordination among Federal and State agencies has remained consistent through each planning cycle. It is important to note that there has been a tendency for better interaction between agencies. This is a direct result each agency's participation in the planning process over the years. More state and Federal agencies have become actively involved with the SHMT. Many members of the SHMT worked closely with FEMA, USACE and NRCS during the Southern Utah flooding in 2005. This partnership and working relationship continues. Many members of the SHMT coordinate and support local mitigation following natural hazard events such as the June 2010 flooding post fire debris flow in 2009 in Draper and 2010 in Herrirman. Both of these jurisdictions are in Salt Lake County. The Governor's Geological Hazards Working Group document continues to be a catalyst for effective landslide mitigation measures.

Description of Participating Agencies

State Hazard Mitigation Team

The Utah State Hazard Mitigation Team (SHMT) consists of representatives from State and Federal agencies, local agencies, and professional organizations. Individuals are subject matter experts in fields related to hazard mitigation. The Team includes geologists, hydrologist, meteorologists, engineers, and biologists to name a few. The primary role of the SHMT is to:

- Provide pre and post hazard mitigation information and technical assistance to local governments and individuals.
- Identify specific mitigation measures and assist in their implementation.
- Assist in evaluation and review of existing hazard mitigation plans.

The State Hazard Mitigation Team consists of the following principal individuals with addition experts available if requested.

Table I-2 State Hazard Mitigation Team Members

Name	Agency Representing
Steve Bowman	Utah Geologic Survey
Richard Giraud	Utah Geologic Survey
Chris DuRoss	Utah Geologic Survey
Eric Larson	Utah Wildlife Resources
Tyre Holfeltz	Utah Forestry, Fire, and State Lands
Tracy Dunford	State Forestry, Fire, and State Lands
Kim Dykes	Utah Department of Environmental Quality
Peter Keers	Utah Department of Environmental Quality
Kim Viehweg	Utah Department of Environmental Quality
Ken Short	Utah Water Resources
Darren Rasmussen	Utah Water Rights
Dave Marble	Utah Water Rights
Everett Taylor	Utah Water Rights
Chris Siavrakas	Utah Department of Transportation
David Buell	Utah Department of Technology Services
Kyle Stephens	Utah Department of Agriculture
Chris Crnich	Utah Department of Agriculture
Evan Curtis	Governor's Office of Planning & Budget
Kevin Barjenburch	SL National Weather Service
Brian Mclnerney	SL National Weather Service/ CBRFC
Norm Evanstad	US Natural Resource Conservation Service
Bronson Smart	US Natural Resource Conservation Service
Randy Julander	US Natural Resource Conservation Service
Ana Vargo	US Natural Resource Conservation Service
Scott Stoddard	US Corp of Engineers
Cory Angeroth	US Geological Survey
Terry Kenney	US Geological Survey
Pat Lambert	US Geological Survey
Ed Vidmar	US Bureau of Reclamation
Dan Grundvig	US Bureau of Reclamation
Nancy Barr	Utah Division of Homeland Security
Brad Bartholomew	Utah Division of Homeland Security
John Crofts	Utah Division of Homeland Security
Bob Carey	Utah Division of Homeland Security
Amisha Lester	Utah Division of Homeland Security
Judy Watanabe	Utah Division of Homeland Security
Jona Whitesides	Utah Division of Homeland Security
Josh Groenveld	Utah Division of Homeland Security
Katie Webb	Utah Division of Homeland Security
Matt Morrison	SLCO UFA
Ben Teran	SLCO UFA

The SHMT met on the following dates during the update planning process:

- February 5, 2008
- April 16, 2008
- August 5, 2008
- November 4, 2008
- February 3, 2009
- April 29, 2009
- August 4, 2009
- November 3, 2009
- February 2, 2010
- April 28, 2010
- August 3, 2010
- November 1, 2010

Utah Seismic Safety Commission

The 13-member Utah Seismic Safety Commission (USSC) was established with the passage of House Bill 358, during the 1994 legislative session. In the 2000 legislative session, the USSC Act was amended by HB200. This amendment revised the membership of the Commission and added two additional seats. The USSC advises federal, state and local agencies and jurisdictions along with the private sector on earthquake-related policy and loss-reduction strategies.

The objective of USSC is to:

- Review earthquake-related hazards and risk in Utah,
- Prioritize recommendations to identify and mitigate these hazards and risks,
- Prioritize recommendations for adoption as policy or loss reduction strategies,
- Act as a source of information for earthquake safety and promote loss reduction measures,
- Prepare a strategic seismic safety planning document, and
- Update the strategic-planning document and other supporting studies or reports.

The USSC has compiled a report outlining a long-term plan to improve earthquake safety in the state of Utah entitled "A Strategic Plan for Earthquake Safety in Utah - 1995." The plan lists 33 specific strategies grouped into five key objectives and are outlined in a 64-page report found in Appendix C. "Earthquake Safety in Utah, Progress Report for Period July 2000 – June 2007" can also be found in Appendix C. Table I-3 lists the agencies, organizations, and private businesses represented on the USSC.

Table I-3 Utah Seismic Safety Commission Members - 2010

Name	Organization Represented
Roger Evans	Utah League of Cities and Towns
Rick Allis	Utah Geologic Survey
Keith Koper	University of Utah Seismograph Stations
M. Leon Berrett	American Public Works Association
Evan Curtis	Governor's Office of Planning & Budget

Sheila Curtis	Utah Insurance Department
Michelle Jones	Association of Contingency Planners
Senator Peter C. Knudson	Utah State Senate
Keith Squires	Utah Division of Homeland Security
Greg McCombs	BHB Consulting Engineers
Peter W. McDonough	American Society of Civil Engineers
Michael T. Morley	Utah House of Representatives
Matthias Mueller	Utah Division of Facilities Construction
Fred Doehring	Utah Department of Transportation
Barry Smith	American Institute of Architects
Doug Bausch	Federal Emergency Management Agency
Mark Peterson	U.S. Geologic Survey
Robert D. Carey	Utah Division of Homeland Security
Christopher DuRoss	Utah Geological Survey

Bob Carey, Utah DHLS Operations Section Manager and Earthquake Program Manager, represents the SHMPC on the Utah Seismic Safety Commission. USSC conducted meetings on the following days during the PDM planning process:

- January 11, 2008
- April 4, 2008
- July 11, 2008
- October 28, 2008
- January 8, 2009
- May 20, 2009
- July 16, 2009
- October 22, 2009
- January 21, 2010
- May 2010
- July 2010
- October 2010

Associations of Governments

Associations of Governments AOG, implement the vision of multi-county or regional planning districts to coordinate planning and governmental activities within a specified geographic area of the state. These multi-county planning districts, or Associations of Governments (AOG), encompass and combine three or more counties with the primary concern to provide a framework to aid and encourage better coordination of and communication between plans and programs and to facilitate more efficient and effective ways for the administration and delivery of services that will carry out the responsibilities of government, provide and operate various types of services or to develop facilities that would be more efficient on a district basis. Regional planning districts have a few distinct purposes:

- Regional (and state-wide) planning and integration,
- Reduce duplication of local government efforts,
- Economies of scale.

With these distinct advantages, regional planning districts appeared the obvious solution to the rising difficulties of government activities in the middle 1960s when they were started and again when the state was faced with meeting the task of regional mitigation planning. In fact, Utah took to this concept almost out of necessity.

Table I-4 Associations of Government Board of Directors

Name	Association of Governments
Kenneth L. Sizemore	Five County Association of Governments
Bill Howell	Southeastern Association of Governments
Roger Jones	Bear River Association of Governments
Laurie Brummond	Uintah Basin Association of Governments
Russell Cowley	Six County Association of Governments
Chuck Chappell	Wasatch Front Regional Council
Jay Franson	Mountainland Association of Governments

Several factors helped Utah to consider regional planning districts, including, but not limited to, the following:

- Utah's rural county makeup--and its declining rural county population--enhanced the difficulty of providing effective state and federal programs.
- These local government entities also found it difficult to resolve and develop support services for the rising social and economic problems of modern society.
- Many state or federal programs encompassed boundaries broader than, and separate from, city and county lines, resulting in overlapping jurisdictions, duplication, and competition for resources (i.e. law enforcement and employment security).
- Various regional groups had been formed, but not in any organized fashion, increasing the difficulty of approving, funding, and administering government programs.

On the federal level, a presidential memorandum issued in 1966 recognized the problem and requested federal agencies to coordinate and establish the multi-jurisdictional planning units with boundaries congruous with state planning and development districts. Subsequently, Circulars A-80 (1967) and A-95 (1969) were issued by the Bureau of the Budget encouraging the establishment of these state planning and development districts. The catalyst of Circular A-95, the Intergovernmental Cooperation Act of 1968, requested the creation of mechanisms to evaluate and review federal programs that heavily influence local planning and development.

Utah Living With Fire Committee

The Utah Living with Fire Program is a statewide effort, designed by agencies and communities, committed to providing wildfire information and education to mobilize citizens to establish and maintain wildfire defensible communities. The Utah Living with Fire Committee was formed to initiate and oversee the Utah Living with Fire Program. The committee includes members from city, county, state, and federal agencies responsible for wildfire suppression and education. Through this effort home owners living in wildland areas have been educated on the threat of wildland fire and mitigation

measures they can take to help defend there property. The following agencies are represented on the ULWF committee: UFFSL, BLM, USFS, DHLS, State Fire Marshals Office, U of U, USU, Big Cottonwood Canyon Association, Salt Lake City, Salt Lake County, Utah County, and Davis County.

More information can be found on their website
http://planning.utah.gov/super/Video%20Pages/Living_With_Fire.htm

Utah Floodplain and Stormwater Management Association UFSMA

The Utah Floodplain and Stormwater Management Association, is an organization of professionals involved in floodplain management, stormwater management, flood hazard mitigation, the National Flood Insurance Program and FEMA's Risk Map and flood preparedness. UFSMA has become a respected voice in floodplain management practice in Utah because it represents the flood hazard specialists of local, state and federal government, the research community, the insurance industry, and the fields of engineering, hydrologic forecasting, emergency response, water resources, and others.

Each year UFSMA holds an annual conference on various floodplain and stormwater management issues. This conference is typically held in October. The conference is moved around to different parts of the state to incorporate more individuals into our association and to discuss different issues for the different regions. We also conduct roundtable discussions on specific topics. These roundtables in the past have been on the map revision process, stormwater management guidelines, and local stormwater management programs. They are offered throughout the year, usually in the summer.

The purposes of the Utah Floodplain and Stormwater Management Association are:

- To educate those involved in floodplain and / or stormwater management about the regulations governing their programs and keep them in compliance with those regulations.
- To encourage communities involved in the Stormwater Phase II to be aware of upcoming deadlines and assist them in implementing their stormwater management programs.
- To promote flood awareness and encourage wise use and management of floodplains.
- To educate locals on new techniques and innovative and improved measures for floodplain management.
- To protect teach and educate professionals to the principles of No Adverse Impact (NAI).
- Promote and encourage the protection of life, property, environment, and commerce.

Table I-5 - Utah Floodplain and Stormwater Management Association Board of Directors - 2010

Name	Organization Represented
Remmett DeGroot, Chairman	URS, Salt Lake City
Scott Stoddard, Vice-Chair	US Army Corps. Of Engineers
Randy Wahlen, Secretary	Mountain States Concrete Pipe Association.
Judy Watanabe, Treasure	Utah Division of Homeland Security
Derrick Radke	Summit County Division of Engineering
Dr. William Rahmeyer	Water Research Lab, Utah State University
WD Robinson	Utah Agriculture and Food
Denis Stuhff	Utah Dept. of Transportation
John Crofts	Utah Division of Homeland Security

City and County Emergency Managers

There are 144 designated City and County Emergency Managers in the state of Utah. The majority of these emergency managers are; volunteers, as a current City/County employee have this additional duty assigned to them, or are part time employees paid through a Federal grant. There are only five designated full time emergency managers in the state. These dedicated professional ensure Utah can respond to, recover from, prepare for and mitigate for disasters in the state.

City and County Emergency Managers played a significant role in the mitigation planning process. Their knowledge of natural hazards in their communities allowed for the development of sound, realistic mitigation strategies, identified in the Regional plans. As emergency managers they are aware of the importance of planning principles and support efforts to ensure the Regional plans reflect their unique hazards and risks. Emergency Managers were instrumental in the formal adoption of the Regional mitigation plans.

Quarterly emergency manager's meetings are held to discuss current issues and update the emergency management community on ongoing natural, technological, and human event planning activities, grant opportunities, training, and other items related to their responsibilities as emergency managers. A yearly Public Officials Conference POC is also held to educate and inform elected officials and emergency managers of current emergency management issues and trends.

Governor's Geologic Hazards Working Group Completes Final Report

The mission statement of the group is to "Improve the land-use-regulation process to reduce losses from geologic hazards to an acceptable level."

Landslides in 2005 and 2006 that damaged houses in approved, permitted subdivisions highlighted a need to evaluate the land-use-regulation process in Utah and identify possible improvements to prevent future losses. To perform this evaluation, Utah

Governor Jon M. Huntsman, Jr. approved establishing the Geologic Hazards Working Group (GHWG), chaired by the Utah Geological Survey, to develop recommendations to improve the subdivision-approval process in geologic-hazards areas, identify responsible parties and resources needed, and determine how state agencies, including the UGS, can help.

Members of the GHWG include local government officials representing cities and counties that have experienced losses from geologic hazards; representatives of the American Planning Association, Utah City Engineers Association, Utah League of Cities and Towns, and Utah Association of Counties; and state government officials from agencies that provide assistance to local governments. The group held a series of meetings between September 2006 and August 2007 and developed 11 draft recommendations. Public comments on draft recommendations, chiefly from developers, consultants, and homeowners affected by landslides, were sought at a public meeting in June 2007.

In summary, the GHWG recommends that (1) local governments adopt, implement, and enforce ordinances that effectively address geologic hazards, (2) developers' consultants objectively assess geologic hazards in pre-development geologic-hazards reports and recommend prudent actions to reduce risks, and the reports be reviewed by professionals acting on behalf of local governments, and (3) developer's consultants inspect, monitor, and provide final documentation, with local government oversight, that site grading and development conform to specifications. Other recommendations include possible geologic-hazards disclosure in real-estate transactions, and post-disaster technical investigations to determine causes and identify where the subdivision-approval process failed. The GHWG determined that state agencies can help local governments principally by providing technical resources and funding to assist in writing ordinances, prepare and update geologic-hazards maps, and assist with other technical aspects of the subdivision-approval process.

Many of the GHWG's recommendations can be completed with existing resources, but some involve a significant increase in workload to expand programs. The GHWG final report was presented to Governor Huntsman on September 25, 2007. The status of the Report and recommendations has not changed. Measures to fund the recommendations remain difficult at the state and local levels of government.

Resource Development Coordinating Committee

The Resource Development Coordinating Committee (RDCC) is a clearinghouse for information on activities affecting state and public lands throughout Utah. The RDCC, meets monthly and includes representatives from the state agencies that are generally involved or impacted by public lands management. The RDCC coordinates the review of technical and policy actions that may affect the physical resources of the state and facilitates the exchange of information on those actions among federal, state, and local government agencies.

Integration with Ongoing Planning Efforts

Requirement §201.4(b): [The State mitigation planning process should] be integrated to the extent possible with other ongoing State planning efforts as well as other FEMA mitigation programs and initiatives

National Fire Plan and Utah Forestry, Fire, and State Lands Community Fire Planning

The Utah Division of Forestry, Fire, and State Lands UFF&SL initiated Community Fire Planning for the wildland urban interface communities of Utah. Over 400 Utah communities have been classified as "at risk" to wildfire, in the National Fire Plan. To protect these communities; community fire planning was initiated to:

- Empower communities to organize, plan, and take action on issues impacting community safety.
- Enhance levels of fire resistance and protection to the community
- Identify the risks of wildland/urban interface fires in the area
- Identify strategies to reduce the risks to homes and business in the community during a wildfire.

Above all, the community plans, because of their grass roots organization and training have enforced the fact that wildfire is a local issue and the ownership of the problem resides at the local level.

The community wildfire plans in table I-6 were both supported and utilized in the creation of this mitigation plan and the multi-jurisdictional mitigation plans.

Table I-6 Community Fire Planning Completed and in Progress

Community Fire Plans Completed		
No.	***Community***	***County***
1.	Mt. Haven	Salt Lake
2.	Cardiff Fork	Salt Lake
3.	Mill D	Salt Lake
4.	Pinetree	Salt Lake
5.	Silver Fork	Salt Lake
6.	Evergreen	Salt Lake
7.	Giles Flat	Salt Lake
8.	Brighton	Salt Lake
9.	Summit Park	Summit
10.	Sundance	Utah
11.	Woodland Hills	Utah
12.	Central	Washington
13.	Dixie Deer	Washington
14.	Mt. Aire	Salt Lake
15.	Covered Bridge	Utah
16.	Fruitland	Duchesne
17.	Bandanna Ranch	Duchesne
18.	Tabby Shadows	Duchesne
19.	Sundowner Ridge	Duchesne
20.	Pinyon Ridge	Duchesne
21.	Young Ranch	Duchesne
22.	Coleman Mountain Ranch	Duchesne
23.	Clark Estate	Duchesne
24.	Lower Red Creek	Duchesne
25.	Manorlands	Summit
26.	Pinebrook	Summit

Community Fire Plans in Process		
No.	***Community***	***County***
1.	Bullion Canyon (BLM)	Piute
2.	Monroe/Manning Meadows (BLM)	Sevier/Piute
3.	SUU Mountain Center (BLM)	Iron
4.	East Zion (BLM)	Kane
5.	Vista Grande (BLM)	Rich
6.	Willow Glen	Sanpete
7.	Swiss Mountain	Wasatch
8.	Echo Creek	Summit
9.	Hobble Creek	Utah
10.	Diamond Hills	Wasatch
11.	Woodland Estate	Wasatch
12.	Pine Mountain	Summit
13.	Canyon Rim	Summit
14.	Hidden Lake	Summit
15.	Echo Creek Ranches	Summit
16.	Pine Meadows	Summit
17.	Dry Fork / Deep Creek	Uintah
18.	Taylors Flat (BLM)	Daggett
19.	Nordic Valley	Weber
20.	Springdell	Utah
21.	Uintah Highland	Weber
22.	Sourdough	Weber
23.	Causey Estate	Weber
24.	Birch Glen	Cache
25.	Scare Canyon	Cache
26.	Cedar Ridge	Cache

27.	Colony at White Pine Canyon	Summit
28.	Bridgerland	Rich
29.	Cedar Highlands	Iron
30.	Interlaken	Wasatch
31.	Eureka	Juab
32.	Mammoth	Juab
33.	Silver City	Juab
34.	Brian Head	Iron
35.	Duck Creek	Kane
36.	Skyline Mtn. Resort	Sanpete
37.	Canaan	Washington
38.	Hi-Low / Arrowhead	Beaver
39.	Quichipa	Iron
40.	Brookside	Washington
41.	Hideaway Valley	Sanpete
42.	Indian Ridge	Sanpete
43.	Blackhawk Estates	Sanpete
44.	Panorama Woods	Sanpete
45.	Fairview Ranchos	Sanpete
46.	Indianola	Sanpete
47.	Camp Kolob	Washington
48.	Bryce Woodlands	Kane
49.	Far West/Comstock/Diamond Z Ranch	Iron
50.	Mammoth Creek	Garfield
51.	Pine Creek Ranch	Sanpete
52.	Apple Valley	Washington
53.	Gooseberry	Washington
54.	Little Creek	Washington
55.	South Zion Estates	Washington
56.	Mountain Meadows	Washington
57.	Saratoga Springs (BLM)	Utah
58.	Forest Home at Lambs Canyon	Salt Lake
59.	Castle Valley (BLM)	Grand
60.	Hi-Country Estates	Salt Lake
61.	Joe's Valley	Emery
62.	Pack Creek	San Juan
63.	East Carbon/Columbia (BLM)	Carbon
64.	Wray Mesa/Old LaSal	San Juan
65.	Aspen Hills	Sanpete

27.	Argyle (BLM)	Duchesne
28.	Gunlock (BLM)	Washington
29.	Enterprise (BLM)	Washington
30.	Veyo (BLM)	Washington
31.	Pine Valley	Washington
32.	Zion Ponderosa	Kane
33.	Big Water	Kane
34.	Hildale	Washington
35.	Torrey/Teasdale/Grover (BLM)	Wayne
36.	Rockport Area	Summit
37.	Winchester Hills (BLM)	Washington
38.	Rocky Ridge	Juab
39.	Eastland (BLM)	San Juan
40.	Shivwits Band of Piute (BLM)	Washington
41.	Holiday Park	
42.	Hildale (BLM)	Washington
43.	Westwater (BLM)	Grand
44.	Clear Creek	Carbon
45.	Scofield	Carbon
46.	Monument Canyon (BLM)	San Juan
47.	Kenilworth (BLM)	Carbon
48.	Monticello (BLM)	San Juan
49.	Emigration Canyon	Salt Lake
50.	New Harmony (BLM)	Washington
51.	Eagle Mountain (BLM)	Utah
52.	Cedar Fort (BLM)	Utah
53.	Grantsville (BLM)	Tooele
54.	Comstock Corridor (BLM)	Iron
55.	Iron Town (BLM)	Iron
56.	Timberlakes	Wasatch
57.	Samak	Wasatch
58.	Diamond Mtn. (BLM)	Uintah
59.	Uintalands	Summit

Southwest Utah Regional Wildfire Protection Plan - Final

The Community Development Division staff of the Five County Association of Governments in cooperation with the Color Country Interagency Fire Center has prepared a regional wildfire protection plan that covers Beaver, Garfield, Iron, Kane and Washington Counties.

The "Southwest Utah Regional Wildfire Protection Plan" has been prepared to help our region's individual counties and the region as a whole clarify and refine its priorities for life, property, and critical infrastructure in the wildland urban interface (WUI) areas. Each region of the state of Utah is different; therefore each plan being developed in the various multi-county regions of the state is specific to the needs of the residents within its project area.

The goal was to develop a collaborative plan that will assist the counties, communities, and state and federal government agencies in reducing the risk of catastrophic wildfire within this region. Some of the issues that were addressed include wildfire response, wildfire hazard mitigation in project focus areas, and structures at risk, public education,

and community preparedness.

The plan can be viewed/downloaded by clicking on this link.

Floodplain Management – Floodplain Mapping

Within Utah's floodplain management program one of the top priorities has been and will continue to be updating current floodplain maps and mapping those areas of the state yet to be mapped. This effort is directly integrated into the hazard mitigation planning process. Through coordination with local governments, during the completion of the multi-jurisdictional PDM plans, the age of floodplain maps along with their inaccuracy was a consistent concern raised at the local level. This is evident in the mitigation recommendations put forward in the local mitigation plans.

The following plans and tool support Utah's commitment to floodplain management: Utah Risk Map Grant Narrative 2010, Utah MMMS Business Plan 2009 – Update, CAP Gap Tool 2009. These plans are available for reviewed in Appendix D.

County Emergency Operations Plans (EOP)

Mitigation, one of the four phases of emergency management is included in most city and county emergency operations plans EOP. These plans detail how local governments will respond to events. These plans include information on vulnerability, potential dollar losses, and likelihood of natural events; all products of the multi-jurisdictional PDM plan. Incorporating PDM data is aiding locals in developing and updating their county and city EOP. Understanding the cost of infrastructure within a given jurisdiction regardless of how it was damaged is assisting locals in developing exercises based on real world estimates.

Technological and Human-Caused Hazards

Following the events that took place on September 11, a new emphasis was placed on human-caused disaster and terrorism. To address this threat most jurisdictions have begun working on human-caused annexes to their EOP. Utah DHLS included technological and human-caused hazards as a part of the plan. The information from these hazards takes advantage of plans created by other State agencies, such as the Health Department and the Department of Public Safety. The planning team estimates that more will be added to the technological and human-caused hazards for the next SHMP update in three years.

Emergency Management Accreditation Program (EMAP)

In 2007, the State of Utah achieved the milestone of having a fully accredited EMAP, joining nine other states and three local jurisdictions with accredited programs. The state is currently working on updating their EMAP accreditation. Emergency management accreditation represents a significant achievement. The programs documented how they meet national standards for their disaster preparedness and response systems. To achieve accreditation, Utah DHLS documented compliance with 54 national standards used in the accreditation process. Each jurisdiction had taken corrective steps in several areas to meet all the standards during a conditional accreditation period.

The Emergency Management Accreditation Program or EMAP is a voluntary review process for state and local emergency management programs. Accreditation is a means of demonstrating, through self-assessment, documentation and peer review, that a program meets national standards for emergency management programs.

EMAP was created by a group of national organizations to foster continuous improvement in emergency management capabilities. It provides emergency management programs the opportunity to be recognized for compliance with national standards, to demonstrate accountability, and to focus attention on areas and issues where resources are needed.

Envision Utah

In January 1997, the Envision Utah Public/Private Partnership was formed to guide the development of a broadly and publicly supported Quality Growth Strategy - a vision to protect Utah's environment, economic strength, and quality of life for generations to come. Five years of scenarios analysis, research and public involvement have helped Envision Utah bring the topic of planning and preparing for growth to the forefront of the public mind. With the help of thousands of Utah residents, Envision Utah has developed a Quality Growth Strategy that will help preserve critical lands, promote water conservation and clean air, improve our region-wide transportation systems, and provide housing options for all residents.

Envision Utah's goal throughout the process has been to involve key decision-makers and the community to gain support at the ground level. Building grass roots support for the project will ensure successful implementation. The Envision Utah effort has included research concerning core values of Utah residents, workshops with key stakeholders to address where and how to grow, and extensive public awareness and education efforts asking Utah residents to express their preferences for their communities' future. The Governor's Office of Planning and Budget coordinates a technical committee, Quality Growth Efficiency Tools (QGET) that provided critical technical information to help analyze the impacts of growth on transportation, air quality, land use, water supply/demand, and infrastructure costs. Through the exhaustive involvement of the public, local and state elected officials, the business, civic, and religious communities, and other key stakeholders, Envision Utah has gathered information about what Greater Wasatch Area resident's value and how they think growth should be accommodated. Based on this information, Envision Utah identified six primary goals that need to be addressed in the Greater Wasatch Area if we are to protect our environment and maintain our economic vitality and quality of life as we accommodate anticipated growth:

- Enhance air quality;
- Increase mobility and transportation choices;
- Preserve critical lands, including agricultural, sensitive and strategic open lands;
- Conserve and maintain availability of water resources;
- Provide housing opportunities for a range of family and income types; and
- Maximize efficiency in public and infrastructure investments to promote other goals.

These goals can be realized over time by the careful and deliberate pursuit of the thirty-two individual strategies identified by Envision Utah in the Quality Growth Strategy. These strategies rely on citizen involvement with local officials, local land-use decision-making and more awareness of free market needs in housing choices. Cooperation at the regional level, state incentives to local governments and local government incentives to developers will also be necessary to address issues such as air quality, water conservation, housing opportunities, transportation, and critical lands.

Envision Utah has developed model codes and development standards for quality growth, including for environmentally sensitive areas such as:

- Floodplain corridor lands
- Riparian preserve lands
- Erosive and slope failure lands
- Wildfire lands

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- Conserve and maintain availability of water resources;
- Provide housing opportunities for a range of family and income types; and
- Maximize efficiency in public and infrastructure investments to promote other goals.
- Strategies Supporting the Goals of Envision Utah

The six goals outlined in the Quality Growth Strategy can be realized over time by the pursuit of the thirty-two individual strategies. A few examples of key strategies include:

- Create More Walkable Communities
- Preserve Critical Lands & Park Space
- Develop a Region-Wide Transit System
- Foster Transit-Oriented Development
- Restructure Water Bills to Encourage Conservation

More information on Envision Utah can be found on their website http://envisionutah.org/index.html.

Governor's Office of Planning and Budget

The Governor's Office of Planning and Budget (GOPB) along with the Utah Quality Growth Commission (QGC) are encouraging "Quality Growth" to protect Utah's future. Quality growth requires a balance between the protection of critical lands and the requisite development of residential, commercial, and industrial land to accommodate an ever-expanding economy and population. Many communities, however, lack the funds, resources, or staff needed to identify these critical lands, thus leading to an unbalanced system that favors unchecked and costly development. In order to facilitate critical lands planning at the local government level the GOPB and QGC created the Critical Lands Planning Toolkit which is now a key part of the Super Tool.

The State of Utah Planning and Education Resource (SUPER) tool is more than just a toolkit; it is an effort at collaboration and coordination of the many planning efforts that are taking place throughout the State of Utah. SUPER is a portal for planning tools and resources, regardless of agency or organization. The idea is to put the many planning resources from throughout the state into the hands of working planners and policy makers at the local government level. SUPER links not only to tools and resources, the home page also links to the web pages of the various planning entities in the State.

GOPB is working with Utah DHLS on funding mitigation tools to be a part of the Super Tools.

The Super Tool can be found online at: http://planning.utah.gov/super/

Additional Plans and Programs relate to the State Hazard Mitigation Plan

In addition to the planning efforts discussed above, the State Hazard Mitigation Plan incorporates by reference the following plans and/or programs developed by state or federal agencies. Mitigation programs, priorities, and initiatives described within these plans, should be conformed to, supported, and incorporated into mitigation planning done by local jurisdictions and state agencies.

National Fire Plan, USFS
Reference: http://www.forestsandrangelands.gov/resources/overview/

Dam Safety Section
Utah Dam Safety Guide to Routine Maintenance of Dams 2003
Reference: http://www.waterrights.utah.gov/daminfo/maint_guide.pdf

Utah Dam Safety Guide to Emergency Action Plans Development and Implementation 2003
Reference: http://www.waterrights.utah.gov/daminfo/eap.pdf

"Drought in Utah, Learning from the Past – Preparing for the Future", State of Utah, Division of Water Resources, 2007
Reference: http://www.water.utah.gov/DroughtReport/Drought2008A.pdf

Utah's M&I Water Conservation Plan, State of Utah Division of Water Resources, 2003
Reference: http://www.water.utah.gov/M&I/Plan7-14-03.pdf

Water Reuse in Utah, 2005, State of Utah, Division of Water Resources, 2005
Reference: http://www.water.utah.gov/WaterReuse/WaterReuse.pdf

Conjunctive Management of Surface and Ground Water in Utah, State of Utah, Division of Water Resources, 2005
Reference: http://www.water.utah.gov/CMReport/CMReport1bCC.pdf

Utah State Water Plan, State of Utah, Division of Water Resources, 2001
Reference: www.water.utah.gov/waterplan

A Strategic Plan for Earthquake Safety in Utah, 1995 Utah Seismic Safety Commission
Reference: http://ussc.utah.gov/publications.html

Earthquake Safety in Utah "A Progress Report on Activities for the Period July 2004-June 2007" Utah Seismic Safety Commission, 2008
Reference: http://ussc.utah.gov/publications.html

Earthquake Safety in Utah "A Progress Report on Activities and Accomplishments of the Utah Seismic Safety Commission for the Period July 1, 1996 to June 30, 2000" Utah Seismic Safety Commission, 2000
Reference: http://ussc.utah.gov/publications.html

Earthquake Safety in Utah "A Progress Report on Activities for the Period July 2000–June 2004" Utah Seismic Safety Commission,
Reference: http://ussc.utah.gov/publications.html

Utah Forest Health Report A Baseline Assessment 1999-2001. Department of Natural Resources Division of Forestry, Fire, and State Lands.
Reference: http://www.ffsl.utah.gov/foresthealth/utfor-lr.pdf

Integration with FEMA Programs and Initiatives

FEMA is the backbone of natural hazard mitigation with FEMA programs driving mitigation nation wide. FEMA initiated mitigation planning and has administered funding for the new PDM planning requirement for which this plan was prepared for. The following is a description of several major FEMA programs integrated into this mitigation plan.

Pre-Disaster Mitigation Planning-Competitive (PDM-C)
This federal grant program is a competitive program administered by FEMA. Grant applications are forwarded to a national review panel where they compete against one another for funding. Competition is based benefit to cost, feasibility, mitigation merit, etc.

Utah has received over $16 million in Federal money in PDM-C for 28 projects and planning grants in the last seven years. The PDM program is a competitive grant that is awarded to applicants who have demonstrated that their mitigation projects will be beneficial to the residents, save lives and protect property. PDM is a 75/25 match that is appropriated by Congress on a year-by-year base and awarded to projects that meet requirements set by FEMA and reviewed by a national board.

Some of the projects Utah has been awarded include: University of Utah Marriott Library Retrofit, Fire Fuels Reduction in Emigration Canyon, Fire Station Retrofits, Water Conservancy District Retrofits, University of Utah Disaster Resistant University, and the Salt Lake Leonardo Center Retrofit.

The state will look to the PDM-C program to complete many of the mitigation strategies described within the pages of this plan and local plans.

Risk MAP Program

The Risk MAP Coordinator assists State Prime Engineering Contractors with any information needed for study related work and helped counties and communities understand the mapping process and timelines. The Risk MAP Coordinator has been the support between the Regional FEMA office and the local communities tracking any and all information needed for study work, as well as facilitating the community with any questions and concerns they have with the studies. An excellent working relationship has developed between FEMA, Region VIII the Utah Risk MAP and Utah's NFIP CAP Coordinator. These relationships will continue and further develop as we move into new mapping studies.

Utah is dedicated to the supporting the National Risk MAP Program Goals. Our maps are some of the oldest in the country, yet we are the fourth fastest growing state. The need for new and accurate mapping is evident. Plans have been developed to help support the National goals.

Utah's Map Modernization Implementation Plan identified the need for new and more accurate flood hazard mapping. The plan is a useful tool in formulating and initiating future flood mapping endeavors. The plan implementation process continues to receive the highest priority and will allow Utah to effectively continue to mitigate and identify flood hazards statewide. This plan identifies needs and creates a framework to coordinate flood mapping efforts and monitor its progress.

Utah Risk Map Grant Narrative 2010, Utah MMMS Business Plan 2009 – Update, CAP Gap Tool 2009 shows Utah's commitment to continuation of the Map Modernization and Risk MAP Program. Utah's goal is to provide the "highest quality possible" in this mapping program where all partners are satisfied with the finished product. See Appendix D for access to these plans and tool.

Through the Flood Map Modernization and Risk MAP Program the State has received money to complete Weber, Davis, Cache, Sanpete, Carbon, Utah, Tooele, Washington,

Wasatch, Iron, Morgan, Box Elder, Uintah and Morgan Counties and the town of Moab. Utah has been receiving funding for a Mapping Coordinator through the MMMS Program since FY04 and a Risk MAP Coordinator since 2009. The State anticipates the Federal funding level will remain consistent as we continue to support the updating of the State's floodplain maps.

National Repetitive Flood Loss Programs

FEMA's Severe Repetitive Loss (SRL) and Repetitive Flood Claims (RFC) programs are to assist States and local governments in supporting actions that reduce or eliminate the long-term risk of flood damage to residential properties insured under the National Flood Insurance Program (NFIP) that meet the definition of severe repetitive loss property, and to reduce losses to the National Flood Insurance Fund (NFIF) by funding projects that result in the greatest savings to the NFIF in the shortest time period. Utah does not have any SRL properties and only six RLC properties.

The floods of 1983 and 1984 proved to be more than just significant flood events. With damages over $500 million, and flooding in virtually every county in the state, these events forced Utah to mitigate flood hazards so that this type of flooding would never happen again.

The 2 million Utah inhabitants are clustered in relatively small geographic areas at the base of steep mountain ranges, with 90 percent of the population concentrated in the Wasatch Front region. Major floods in Utah are almost always the result of rapidly melting snow in late spring and early summer, often intensified by accompanying rain. The snowmelt, combined with precipitation and climate patterns, also impacts the eventual level of the Great Salt Lake, which has no outlet and is thus controlled solely by evaporation.

The flood events of 1983 and 1984 are when Utah has had its most repetitive losses. Fortunately, the state and local communities have mitigated many of the problems that caused this flooding. Pictures from the 1983 flood show State Street in downtown Salt Lake as a river. This flooding was caused by too small of culverts clogged by debris in City Creek Canyon. Since then, larger culverts have been installed and a stormwater management plans and regulations keep the channels free from debris on a regular basis.

The Great Salt Lake flooding was a major problem in the 80's. A closed basin lake posed a dilemma of what to do with the excess water. Huge pumps were installed in 1985 to pump thousands of cubic feet of water from the Great Salt Lake to the west to prevent flooding. These kinds of stories are popular throughout the state where mitigation has occurred to reduce Utah's flooding and eliminate repetitive losses.

StormReady…Putting It All Together

Some 90% of all presidentially declared disasters are weather related. While Forecasts and warnings from NOAA's NWS are critical to *saving lives and livelihoods*, even the most precise and timely information is of little use if not received, understood, and an appropriate response taken. Thus is the need for the StormReady program.

StormReady encourages communities to take a proactive approach to improving local hazardous weather operations and public awareness. StormReady arms communities with improved communication and safety skills needed to save lives and property – before and during the event."

To be recognized as StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center;
- Have more than one way to receive severe weather forecasts and warnings and to alert the public;
- Create a system that monitors local weather conditions;
- Promote the importance of public readiness through community seminars;
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

The following communities in Utah have been designated as StormReady: Cache, Tooele, Daggett, Davis, Salt Lake, San Juan, and Uintah Counties; Salt Lake City, Sandy City, Brigham City, and Logan City; Tooele Army Depot.

More information on the StormReady program can be found at http://www.stormready.noaa.gov/.

National Earthquake Hazard Reduction Program NEHRP

In October the Earthquake Hazards Reduction Act to "reduce the risks life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program. NEHRP is supported by:

- FEMA
- National Institute of Standards and Technology
- National Science Foundation
- United States Geologic Survey

With four basic goals:

- Promote understanding or earthquakes and there effects
- Work to better identify earthquake risk
- Improve earthquake-resistant design and construction techniques
- Encourage the use of earthquake-safe policies and planning practices

NEHRP and the four goals have been integrated throughout the development of this plan. More information about HEHRP can be found here http://www.nehrp.gov/

HAZUS MH

HAZUS-MH, is a nationally applicable standardized methodology and software program, which contains models for estimating potential losses from earthquakes, floods, and hurricane winds. The Federal Emergency Management Agency (FEMA) under contract with the National Institute of Building Sciences (NIBS) developed HAZUS-MH. NIBS maintains committees of wind, flood, earthquake and software experts to provide technical oversight and guidance to HAZUS-MH development.

Loss estimates produced by HAZUS-MH are based on current scientific and engineering knowledge of the effects of hurricane winds, floods, and earthquakes. Estimating losses is essential to decision-making at all levels of government, providing a basis for developing mitigation plans and policies, emergency preparedness, and response and recovery planning.

HAZUS-MH uses state-of-the-art geographic information system (GIS) software to map and display hazard data and the results of damage and economic loss estimates for buildings and infrastructure. It also allows users to estimate the impacts of hurricane winds, floods, and earthquakes on populations.

HAZUS MH was utilized to produce damage loss estimates extensively in this state mitigation plan as well as multi-jurisdictional mitigation plans developed by the seven AOG. In some instances where the model was not fully utilized the loss methodology used by HAZUS or its data was.

State Background

Climate

Topographic Features

The topography of Utah is extremely varied, with most of the State being mountainous. A series of mountains (including the Wasatch Range), which runs generally north and south through the middle of Utah, and the Uinta Mountains, which extend east and west through the northeast portion, are the principal ranges. Crest lines of these mountains are mostly above 10,000 feet. Less extensive ranges are scattered over the remainder of the State. The lowest area is the Virgin River Valley in the southwestern part with elevations between 2,500 and 3,500 feet, while the highest point is Kings Peak in the Uinta Mountains, which rises to 13,498 feet.

The Colorado River and its principal tributary within the State, the Green River, drain practically all of eastern Utah although neither rises within its borders. Western Utah is almost entirely within the Great Basin, with no outlet to the sea. The largest rivers in this area are the Bear, Weber, Jordan, Provo, and Sevier, the first three of which empty into Great Salt Lake, The Sevier River drains the west-central area and empties into Sevier Lake, a brackish saline basin in southwest Utah.

The main streams in the eastern portion of the State flow through canyons or very narrow, confined mountain valleys and finally into desert canyons. Some meadows, usually in native grass, and only a few small local areas of farmland are subject to overflow. Nearly all the main highways and railroads, as well as residential areas, are above flood levels. Highest flow occurs in the steams in this region in May and June during spring runoff from melting snow.

The most serious floods in Utah have occurred in the Great Lake Basin, particularly in the Weber River drainage on the western slopes of the Wasatch Mountains. During the

past 100 years approximately 300 flash floods, resulting from high intensity rainfall accompanying thunderstorms, and 135 snowmelt floods, have been recorded. Some have been very limited in area and extent of damage, while others have been highly destructive in cities, towns and agricultural areas. However, severe floods are not likely to occur in any given locality more than once in several years or even several decades.

Great Salt Lake, in northwestern Utah, lies in the Great Basin, the largest closed basin in North America. Part of this drainage area is below 4,500 feet in elevation, with the Lake being about 4,200 feet. Great Salt Lake is the largest lake at this elevation (or higher) in the world. In glacial times it was a fresh water lake occupying an area 346 miles long and 145 miles wide; but due to increased evaporation and/or reduced precipitation, it gradually shrank in size and the salinity increased. Since this large body of water now has no drainage outlet, the salt content is high, averaging about 25 percent. Thus, the Lake, which never freezes over, provides a moderating effect throughout the year on temperatures in the immediate vicinity.

General Climatic Features

Essentially, Utah's climate is determined by its distance from the equator; its elevation above sea level; the location of the State with respect to the average storm paths over the Intermountain Region; and its distance from the principal moisture sources of the area, namely, the Pacific Ocean and the Gulf of Mexico. Also, the mountain ranges over the western United States, particularly the Sierra Nevada and Cascade Ranges and the Rocky Mountains, have a marked influence on the climate of the State. Pacific storms, before reaching Utah, must first cross the Sierras or Cascades. As the moist air is forced to rise over these high mountains, a large portion of the original moisture falls as precipitation. Thus, the prevailing westerly air currents reaching Utah are comparatively dry, resulting in light precipitation over most of the State.

Temperature

There are definite variations in temperature with altitude and with latitude. Naturally, the mountains and the elevated valleys have the cooler climates, with the lower areas of the State having the higher temperatures. There is about a 3° F decrease in mean annual temperature for each 1,000-foot increase in altitude, and approximately 1.5 to 2° F decreases in average yearly temperature for each one degree increase in latitude. Thus, weather stations in the southern counties generally have average annual temperatures 6 to 8 degrees higher than those at similar altitudes over the northern counties.

Temperatures below zero during winter and early spring are uncommon in most areas of the State, and prolonged periods of extremely cold weather are rare. This is primarily due to the mountains east and north of the State, which act as a barrier to intensely cold continental Artic air masses. The lowest temperature of record is 50° F below zero.

Utah experiences relatively strong insulation during the day and rapid nocturnal cooling, resulting in wide daily ranges in temperature. Even after the hottest days, nights are usually cool over the State.

On clear nights the colder air accumulates, by drainage, on the valley bottoms, while the foothills and bench areas remain relatively warm. For this reason, the higher lands at the edges of the valleys are devoted ordinarily to the more valuable and delicate fruits, berries, and vegetables, while the hardier grains and vegetables are planted in the bottom lands.

Owing to the varied topography of the State, there are no orderly or extensive zones of equal length of growing season between the last freeze in spring and the first in fall. There are, however, from 4 ½ to 5 months of freeze-free growing weather in the State's principal agricultural areas. A difference of two weeks in the growing season is often noted in the same valley between the bottomlands and the adjacent farming lands at the foot of the mountains.

Precipitation

Precipitation varies greatly, from an average of less than five inches annually over the Great Salt Lake desert (west of Great Salt Lake), to more than 40 inches in some parts of the Wasatch Mountains. The average annual precipitation in the leading agricultural areas is between 10 to 15 inches, necessitating irrigation for the economic production of most crops. However, the mountains, where winter snows form the chief reservoirs of moisture, are conveniently adjacent to practically all farming areas, and there is usually sufficient water for most land under irrigation. The areas of the State below an elevation of 4,000 feet, all in the southern part, generally receive less than 10 inches of moisture annually.

Northwestern Utah, over and along the mountains, receives appreciably more precipitation in a year than is received at similar elevations over the rest of the State, primarily due to terrain and the direction of normal storm tracks. The bulk of the moisture falling over that area can be attributed to the movement of Pacific storms through the region during the winter and spring months. In summer northwestern Utah is comparatively dry. The eastern portion receives appreciable rain from summer thunderstorms, which are usually associated with moisture-laden air masses from the Gulf of Mexico.

Snowfall is moderately heavy in the mountains, especially over the northern part. This is conducive to a large amount of winter sports activity, including skiing and hunting. While the principal population centers along the base of the mountains receive more snow, as a rule, than many middle and northeastern sections of the United States, a deep snow cover seldom remains long on the ground.

Runoff from melting mountain snow usually reaches a peak in April, May or early June, and sometimes causes flooding along the lower streams. However, damaging floods of this kind are infrequent. Flash floods from summer thunderstorms are more frequent, but they affect only small, local areas.

Other Climatic Features

Sunny skies prevail most of the year in Utah. There is an average of about 65 to 75 percent of the possible amount of sunshine at Salt Lake City during spring, summer, and fall. In winter Salt Lake City has about 50 percent of the possible sunshine.

During the late fall and winter months, anticyclones tend to settle over the great Basin for as long as several weeks at a time. Under these conditions, smoke and haze accumulate in the lower levels of the stagnant air over the valleys of northwestern Utah, frequently becoming an obstruction to visibility. This is also true of fog, which may persist for several weeks at a time.

Wind speeds are usually light to moderate, ranging below 20 miles per hour. There are only a few tornadoes in Utah as a rule, and those reported usually cause only slight damage. However, strong winds occur occasionally, sometimes attaining damaging proportions in local areas, particularly in the vicinity of the canyon mouths along the western slopes of the Wasatch Mountains. Dust storms occur occasionally, principally over western Utah. These storms are associated with the movement of low-pressure disturbances through the area during the spring months.

Hailstorms may damage fruit and vegetables in limited areas during spring and summer, although the hail is usually small.

Climate and Economy

Utah is not a large agricultural state, even through appreciable crops, livestock, and dairy products are produced within its boundaries. Only four percent of the land is under cultivation, but approximately 35 percent of the land area is utilized for livestock grazing purposes. Livestock represent the largest portion of cash farm income within the State. The largest crop is wheat, most of it being “winter” or “dryland” wheat. Other principal crops are barley, oats, hay, potatoes, corn, and sugar beets. Lesser crops include other grains, fruits, vegetables, berries, melons, dry beans, and alfalfa and sugar beets for seed. Range feeds and dryland crops in non-irrigable areas, particularly in the southern portion, often suffer from lack of moisture.

Mining and manufacturing are the two other basic industries in Utah. The State ranks high in the quantity and value of minerals it produces each year, mainly copper, lead, zinc, gold, and silver. Because of the dry climate, several companies have found it economically feasible to produce salt from the brine of the Great Salt Lake by the evaporation process.

Salt Lake City is the commercial, industrial, and financial center of Utah. Three-fourths of the State’s population is concentrated within a 100-mile radius of that City, and well over one-half the people reside within 50 miles of Salt Lake City.

Tourists come to Utah primarily to visit historic Salt Lake City; to see the Great Salt Lake; to tour the park areas, including Zion National Park, Cedar Breaks National Monument, and Bryce Canyon National Park; and to fish in the cool mountain streams.

Persons traveling in the State during the winter and early spring months should be prepared for cold weather and snow. When crossing the less-frequently traveled areas of the western portion, motorists should carry a supply of fresh water as a safeguard, particularly during the summer months
Source: http://www.wrcc.dri.edu/narratives/UTAH.htm accessed on 12/8/03 Western Regional climate center

Geology

Geology in Utah is multifaceted, very interesting and instrumental in understanding the hazards within the state. The complexity has yielded some of the worlds most inspiring geologic features, such as the Water Pocket Fold of Capitol Reef National Park and the canyons and plateaus of Zion National Park. However complex, Utah's geologic history can be explained with broad generalizations, which serve as a good starting point for interpreting Utah's world-famous topography and scenery.

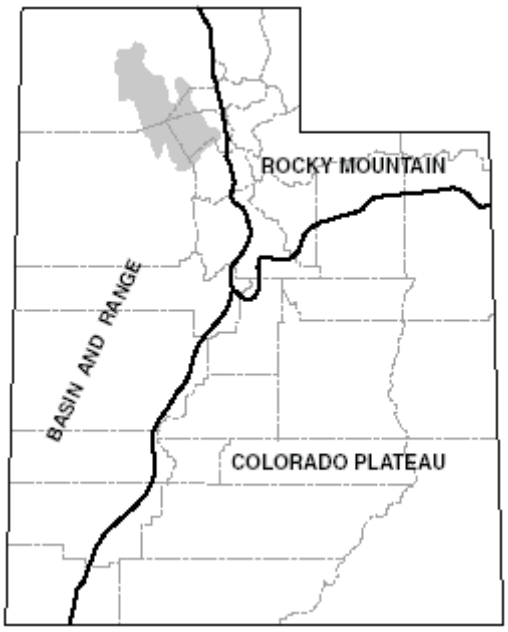


Figure I-1
Major Physiographic Provinces of Utah

Based on characteristic landforms, geologists and geographers have subdivided the United States into areas called physiographic provinces. Features that distinguish each province result from the area's unique geology, including prominent rock types, history and type of deformation (including crustal-scale forces of compression and extension), and erosional characteristics.

Utah contains parts of three major physiographic provinces: the Colorado Plateau, Basin and Range, and Rocky Mountains.
The three provinces meet near the center of the state, with the Basin and Range Province extending across western Utah, the Colorado Plateau across southeastern Utah, and the Rocky Mountains across northeastern Utah.
Where to draw the line between the Colorado Plateau and Basin and Range is subject to debate. Between the two provinces lies an area that displays characteristics of both, and some geologists would make this area a distinct, fourth physiographic province called the Basin and Range - Colorado Plateau Transition. The same holds true for the area between the Rocky Mountains and Basin and Range provinces.
Additionally, each major province can be further divided into sub-provinces. Here, however, we will keep things "simple" and stick to highlights of the three major provinces.

Basin and Range Province
Steep, narrow, north-trending mountain ranges separated by wide, flat, sediment-filled valleys characterize the topography of the Basin and Range Province. The ranges started taking shape when the previously deformed Precambrian (over 570 million years old) and

Paleozoic (570 to 240 million years old) rocks were slowly uplifted and broken into huge fault blocks by extensional stresses that continue to stretch the earth's crust. Sediments shed from the ranges are slowly filling the intervening wide, flat basins. Shorelines and sediments of lakes that intermittently cover the valley floors have further modified many of the basins. The most notable of these was Lake Bonneville, which reached its deepest level about 15,000 years ago when it flooded basins across western Utah.

Colorado Plateau Province

In contrast with the Basin and Range Province, a thick sequence of l largely undeformed, nearly flat-lying sedimentary rocks characterize the Colorado Plateau province. Erosion sculpts the flat-lying layers into picturesque buttes, mesas, and deep, narrow canyons.

For hundreds of millions of years sediments have intermittently accumulated in and around seas, rivers, swamps, and deserts that once covered parts of what is now the Colorado Plateau. Starting about 10 million years ago the entire Colorado Plateau slowly but persistently began to rise, in places reaching elevations of more than 10,000 feet (3,000 meters) above sea level. Miraculously it did so with very little deformation of its rock layers. With uplift, the erosive power of water took over to sculpt the buttes, mesas, and deep canyons that expose and dissect this "layer cake" of sedimentary rock.

Of course, exceptions to this layercake geology do exist. For example, igneous rocks that cooled from oncerising magma form the core of the Henry, La Sal, and Abajo Mountains, and several wrinkles or folds, such as the San Rafael Swell and Waterpocket Fold, can also be found as exceptions to the rule of flat-lying beds.

Rocky Mountains Province

High mountains carved by streams and glaciers characterize the topography of the Rocky Mountains province. The Utah portion of this province includes two major mountain ranges, the north-south-trending Wasatch and east-west-trending Uintas. Both ranges have cores of very old Precambrian rocks, some over 2.6 billion years old that have been altered by multiple cycles of mountain building and burial.

Uplift of the modern Wasatch Range only began within the past 12 to 17 million years. However, during the Cretaceous Period (138 to 66 million years ago), compressional forces in the earth's crust began to form mountains by stacking or thrusting up large sheets of rock in an area that included what is now the northeastern most part of Utah, including the northern Wasatch Range. This thrust belt was then heavily eroded. About 38 to 24 million years ago large bodies of magma-intruded parts of what is now the Wasatch Range. These granitic intrusions, eroded thrust sheets, and the older sedimentary rocks form the uplifted Wasatch Range as it is seen today.

The Uinta Mountains were first uplifted approximately 60 to 65 million years ago when compressional forces created a buckle in the earth's crust, called an anticline. The mountains formed by this east-west-trending anticline were subsequently eroded back down, but began to rise again about 15 million years ago to their present elevations of over 13,000 feet above sea level.

The Rocky Mountains province is further characterized by sharp ridgelines, U-shaped valleys, glacial lakes, and piles of debris (called moraines) created during the Pleistocene (within the last 1.6 million years) by mountain glaciers.

This is, of course, a most cursory overview of the geologic events that formed the topography of Utah's three physiographic provinces. Numerous anomalies and variations give color and detail to the big picture outlined here. Derived: Glad You Asked article, *Survey Notes*, v. 32 no. 1, January 2000

Economy - *"Economic Report to the Governor 2010"*

For the second year in a row, the Economic Report to the Governor portrays difficult times. In contrast to 2009, however, the outlook for 2010 foresees a strengthening recovery. Indeed, preliminary estimates suggest employment in Utah began to grow during September 2009. The U.S. is expected to follow suit as early as the first quarter of 2010. Over the long run, Utah's position as a logistical hub for the west, young and productive workforce, sensible regulatory environment, and excellent system of public and higher education will continue to make it a great place to live and work with plenty of opportunity.

National Outlook

While the official determination may not be made for a year or more, the recession that began in December 2007 appears to have ended during the second or third quarter of 2009. After declining four consecutive quarters, U.S. gross domestic product (GDP) grew 2.2% during the third quarter of 2009. Most indicators of economic activity dropped sharply during the first half of 2009, but stabilized and began to increase during the second half. What initially appeared to be a relatively mild decline, similar to the recessions of 1991 and 2001, changed radically with the failure of the Lehman Brothers investment bank in September 2008. For the rest of that year and throughout 2009, the Federal Reserve and other central banks took unprecedented steps to ease credit conditions, slowing the contraction. Likewise, national governments around the world initiated massive fiscal stimulus programs, led by the $787 billion American Recovery and Reinvestment Act (ARRA). As 2010 opens, expansionary economic policy supports recovery in both the U.S. and around the globe.

Utah Outlook

Utah was growing normally as the recession began. The year-over percent change in employment was 3%, the historic average, much higher than the 0.8% U.S. growth rate. The state fared well during the initial phase of the contraction because housing prices had not inflated like those in Las Vegas or Phoenix. Moreover, as the U.S. economy expanded following the 2001 recession, the Wasatch Front, Cache Valley, St. George, and Cedar City attracted national attention as good locations for business. The state had a relatively diverse and stable economic base, with less exposure to housing and commercial real estate than the rest of the country at the beginning of the recession.

However, as the financial crisis intensified in the fall of 2008, Utah began to track the national downturn. While the economic environment was daunting throughout 2009, the

advantages of doing business in Utah that drove growth before the recession still exist and will contribute to Utah's ultimate recovery.

Utah's Long-Term Projections

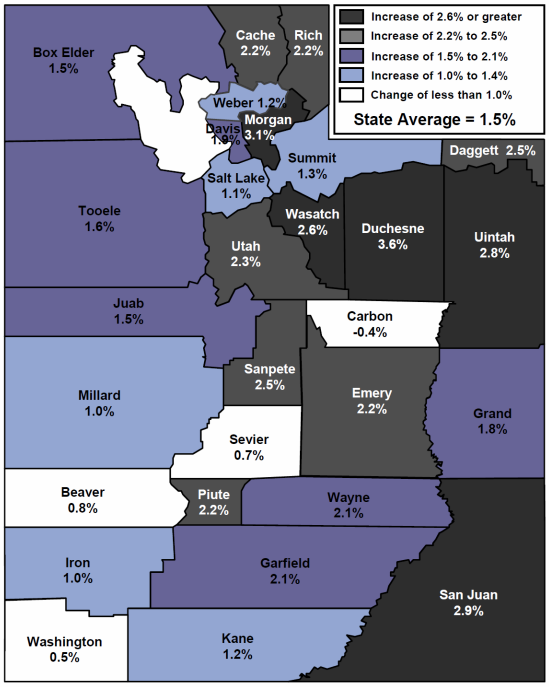
Though Utah's near-term outlook remains soft, long-term economic and demographic projections point to robust growth over the next half century. Utah's population is expected to more than triple from 2.2 million in 2000 to 6.8 million in 2060. The growth rate, which will exceed that of the nation, will be sustained by a rapid rate of natural increase and a well diversified economy. As the state grows, new population centers off the Wasatch Front will emerge.

Economic Indicators

Demographics

Utah's population grew by 42,310 people, or 1.5%, during 2009, to just over 2.8 million. This growth was down from 58,225 in 2008 and a record 84,425 in 2007. Reflecting the difficult times, just 3.7% of the growth in 2008, or 1,547, was from net migration. Over the past decade, net migration accounted for about 35% of population growth, indicating the state's rich opportunity. Utah continues to have a distinctive demographic profile that includes the nation's youngest population, highest fertility rate, largest household size, and low mortality rates. According to the U.S. Census Bureau, Utah was the second fastest growing state in the nation during 2009 with a rate of 2.1%. Wyoming ranked first followed by Utah, Texas, Colorado, and the District of Columbia.

Utah Population Growth Rates by County: 2008 to 2009



Source: Utah Population Estimates Committee

Labor Market

Nonfarm payroll employment declined 4.9% in 2009, almost 61,000 jobs, while the unemployment rate increased to 6.5%, and total wages fell almost $2 billion, or 4.1%. Of Utah's ten major private sector industries, the education and health services sector was the only one to gain employment, growing 4.1% during 2009. Supported by ARRA assistance for education, law enforcement, transportation, and other critical public services, government employment grew 1.3%, but with deteriorating tax revenues, growth is expected to be just 0.5% during 2010. With the housing collapse, construction

lost the most jobs in 2009, over 20,000, which was a decline of over 22%. Because of the sharp fall in energy prices, mining, which is mostly oil and gas extraction, posted the second largest percent decline, 13.6%. Slumping demand for consumer durables such as cars and household appliances and the retrenchment in business investment lead to a decline of almost 13,000 jobs in manufacturing, the second largest amount. The decline in consumer confidence and spending which resulted from the uncertainty surrounding the financial crisis, led to the third largest, a decline of almost 13,000 jobs in trade, transportation and utilities.

Personal Income

Personal income fell $1.1 billion, or 1.3% during 2009, from $87.4 billion to $86.3 billion. The 4.1% decline in wages, the largest component of personal income, was offset by increases in government transfer payments such as unemployment insurance, to soften the overall contraction.

Gross Domestic Product by State

Utah's GDP grew 4% during 2008, from $105.6 billion to $109.8 billion. While Utah grew more rapidly than the nation, the gain in 2008 was substantially lower than in 2007, when the state had the fastest growth in the nation.

Taxable Sales

After declining 0.7% in 2008, taxable sales declined a record 8.7% in 2009, and are expected to grow only 0.4% in 2010. Of the three main components, business investment had the largest rate of decline in 2009, 12.3%, followed by retail trade, 8.3%. Sales of taxable services, the third component, actually increased 0.2%.

Tax Collections

With the deepening recession, tax collections declined a record 12.5% during FY2009. The state's two main sources of revenue, the sales and income taxes, suffered from lower consumer confidence and spending, and the resulting rise in unemployment. Sales tax revenue declined 11%, after declining over 6% in FY2008. The income tax declined almost 11% after a slight increase in FY2008. The third largest revenue source, corporate income tax, sank over 35% as corporate profits collapsed. The outlook for FY2010 continues the drop off in collections, but the rate of decline slows to 7.5%. Each of the three taxes is expected to decline, sales almost 8%, income almost 5%, and corporate 22%.

Exports

Utah's exports fell 10.1% from a record $10.3 billion in 2008 to an estimated $9.3 billion in 2009. Exports have been above $4.0 billion since 2002 and above $6.0 billion since 2005. Record high levels in 2008 were primarily due to robust growth in the first quarter, dropping sharply as global demand slumped.

Inflation

The Consumer Price Index (CPI) for Urban Consumers declined 0.3% during 2009, the first annual decline since the recession following the Korean War. As economic activity picks up in 2010, the CPI is expected to increase 1.7%.

Regional/National Comparisons

While Utah has fared somewhat better than its neighboring states, total personal income fell during 2009 like every other mountain state. Employment levels in the mountain region also declined, largely driven by contractions in Arizona, Idaho, and Nevada.

Utah's employment growth was one of the fastest in the nation between 2003 and 2008, but employment fell 4.9% during 2009, affecting the state's unemployment rate and poverty level. Utah still has one of the lowest unemployment rates in the nation, but it almost doubled from 3.4% in 2008 to 6.5% in 2009. Utah's poverty rate has decreased over time and in 2008 was significantly lower than the national average.

Social Indicators

Utah's quality of life measures continue to be among the best in the nation. The state's violent crime rate remained one of the lowest in the United States; the poverty rate is below the national average and educational attainment is one of the highest. Utah ranked second in the indicators of child well-being and second highest in overall health status.

Public Education

In 2009, there were an estimated 563,273 students in Utah's public education system, an increase of 12,260 students or 2.2% over 2008. These students are becoming increasingly diverse and score respectably with their national peers. In FY2006, Utah's per pupil expenditure was $5,464, the lowest in the nation. Utah's total public education expenditure as a percent of total personal income was 3.7%, ranking Utah 43rd in the nation. Utah's public education system operates over 800 community based schools. The system provides an education that continually evolves in order to prepare students for the future, while competing for revenues, land, personnel, and students.

Higher Education

Enrollment in the Utah System of Higher Education has almost doubled over the past 20 years. In 2009, 12,632 additional students were enrolled, an increase of 8.3% from 2008. Almost 27,000 degrees were awarded within the state system, including nearly 13,000 bachelor's degrees.

Economic Development

Despite the recession, Utah maintained a smart, strong and vital economic development program. The Utah Science, Technology, and Research initiative continued to recruit research faculty. Construction progressed on research buildings on the campuses of the University of Utah and Utah State University. Commercial applications of the research developments promise jobs and revenue for Utah's economy. The Governor's Office of Economic Development continued to attract companies to relocate to Utah and assist Utah companies in expanding operations in the state. Centers of Excellence awarded grants to 22 companies to help them bridge the gap between research outcomes and

venture capital funding. The Downtown Rising and Falcon Hill projects continue to progress.

Industry Focus

Agriculture

It is estimated most agricultural sectors in Utah were less profitable in 2009 than in 2008 and 2007. Factors included lower commodity prices in 2009 than in 2008. Agricultural receipts in 2008 were greater than they had been for the past several years. Due to record high milk prices in 2008, the Utah dairy sector enjoyed record cash receipts and was the largest agricultural sector, as measured by cash receipts. Cattle, the second largest sector, experienced lower prices in 2009 for the second consecutive year. Hay, the third largest agriculture sector in Utah, showed record high price levels in 2008 and experienced higher-than-average cash receipts. Although most input prices were lower in 2009 compared to 2008, providing some relief to agricultural producers, profitability was lower.

Construction

The value of permit authorized construction in Utah fell 25% during 2009 to $3.5 billion, the lowest since 1996. The sharp decline resulted from the severe contraction in nonresidential construction, which fell 37%, from $1.9 billion to $1.2 billion. In addition, the weakness of the residential sector continues although the residential decline appears to be slowing. In 2008 the value of residential construction dropped by 53% compared to 15% in 2009. The value of residential construction in 2009 was $1.6 billion.

Residential construction units dropped from 20,500 in 2007 to 10,603 in 2008 and to 10,150 in 2009. The decline of the residential sector has been slowed by the unexpected jump in new apartment construction, which is up over 80%. The surge in apartment construction is due to the availability of financing. The federal government has provided loan guarantees for the development of new apartments thus spurring construction activity. In contrast, the value for new condominium and single-family detached housing is lower than in2008, forced down in part, by the growing share of lower priced homes and condominiums.

Energy

In 2009, Utah experienced a significant increase in crude oil and natural gas production despite the downturn in the economy and significantly lowers prices. Conversely, coal production decreased as some companies experienced difficult mining conditions, while other mines unexpectedly closed. Production of coal and natural gas continued to satisfy demand, while crude oil production, despite its recent increase, still accounted for only 44% of Utah's total petroleum product consumption. After starting 2009 slightly higher than the lows experienced in late 2008, Utah's natural gas price decreased to the $2 to $3 per thousand cubic feet (mcf) range and remained there for most of the year. In contrast, Utah's crude oil prices were at their lowest at the beginning of 2009, but steadily increased to year-end, possibly signaling a stronger economy for 2010. Crude oil production in Utah has increased a remarkable 82% over the past six years, but in order to keep up with demand, Utah had to import significant amounts of oil from other states

and Canada. Despite significant increases in natural gas production, consumption of natural gas in Utah suffered a recession-related decrease in 2009, opening up more gas for export to other states. Likewise, production and consumption of electricity decreased from record highs achieved in 2008. With an 11% decrease in Utah's coal production in 2009, exports to other states were significantly reduced to supply a steady in-state demand. The yearly average wellhead price of Utah's crude oil decreased a remarkable 43% from the record high of $86.58 per barrel in 2008, to just $49.50 per barrel in 2009. This recession-related decrease meant that Utah customers paid on average 37% less for diesel and 30% less for motor gasoline in 2009. Similarly, the wellhead price of Utah's natural gas was cut in half–$6.15 per Mcf in 2008 to $3.10 Mcf in 2009–which decreased the price for home-heating natural gas by 4.1%. The 2009 average cost of electricity in Utah remained well below the national average.

Minerals

Utah's production of energy and mineral commodities declined $2.6 billion, or 27%, from a record high $9.4 billion in 2008 to $6.8 billion in 2009, in real terms. The decline is mostly due to decreased base metal and industrial mineral values and decreased crude oil and natural gas prices. The decline of nonfuel mineral values, which peaked in 2006, in real terms, will likely be offset by the increased valuation of oil and gas in 2010. The value of Utah's production of nonfuel minerals ranks fourth in the nation.

High Technology

Employment in Utah's high-technology sector averaged almost 69,000 in 2008, an increase of 4.3%, or almost 2,900, from 2007. Total wages paid in the sector were almost $4.6 billion, or 9.8% of all nonfarm wages paid in 2008. The average annual wage was over $66,000, 76% higher than the state average. As the recession deepened, high tech employment began to decline early in 2009. Through the second quarter, employment declined 2.7% year over. As the recovery strengthens, growth should resume during 2010.

Tourism

Utah's travel and tourism sector was not immune to the economic recession, but regional and in-state travel helped to soften the downturn. The Utah ski industry experienced the third best season on record. Visitation increased for the third year in a row at national parks. State park visitation was also up. The outlook for 2010 is cautiously optimistic with expectations that travel among in-state and domestic leisure travelers could increase. There are still concerns about the weak economy, rising unemployment, the housing market, stock market uncertainty, and transportation weakness, but industry experts have forecast limited growth in 2010.

Special Topics

Falcon Hill at Hill Air Force Base

Falcon Hill is the name given to a cooperative effort between the U.S. Air Force, the State of Utah, and several local governments. The Air Force has launched an Enhanced Use Lease project at Hill Air Force Base known as Falcon Hill National Aerospace

Research Park. Road construction is expected to begin in December, 2009 and work on the first commercial building will begin shortly after. During the next 20 years, an investment of $600 million in buildings and land, plus $23 million in equipment is possible, generating over $100 million in property taxes. Ultimately almost 20,000 people could be directly employed by businesses operating at Falcon Hill.

Revenue Forecasting and the Utah State Budget

Utah, like most states, must balance its spending with forecast revenue. A revenue forecast models the relationship between the economy and the tax system. These models rely on mathematical methods, historical trends, and analytical judgment to form a reasoned expectation of future revenue collections upon which budgets are developed. The simplest way to measure accuracy is the difference between forecast and actual. Focusing on the shortest forecast window (i.e., the February Legislative Session forecast for the current fiscal year ending in 135 days), on average, the forecast has underestimated growth by about 2.5%. Over this period, average growth was 8.5% while the average forecast was 5.8%. Volatile sources of revenue were under-forecast by larger amounts. The difference in actual and forecast growth was -2.5% for sales tax, -1.5% for the general fund, -1.2% for individual income tax, -10.3% for corporate tax, -2.7% for the school fund, and -0.5% for the transportation fund.

Housing Update

Utah's housing sector likely reached the bottom of the sharpest decline in history during 2009. A decreased supply of complete unoccupied homes and declines in mortgage rates were offset by rising foreclosures, industry consolidation, and further declines in permits. Utah homebuyers took advantage of record low interest rates, state and federal government stimulus, and declining prices that together created a tremendous improvement in affordability, which is likely to continue into 2010.
Source http://governor.utah.gov/dea/ERG/2010ERG.pdf